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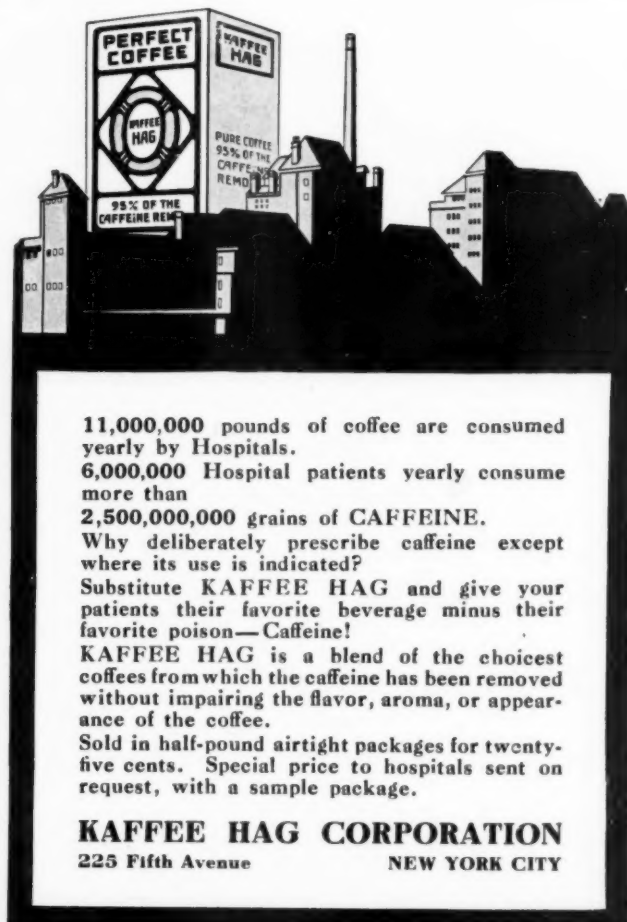
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THE MODERN HOSPITAL

A Monthly Journal Devoted to the Building, Equipment, and Administration of Hospitals, Sanatoriums, and Allied Institutions, and to their Medical, Surgical, and Nursing Services

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SOME ASPECTS OF THE USE OF PROPRIETARY FOODS IN THE DIABETIC DIETARY.¹

Essentials of Diabetic Foods for Use by Scientific Clinicians—Characteristics of the Foods Found in the American Market—Lists of Preparations With Their Food Values, Cost and Comparative Values.

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DIABETES is primarily a disturbance of nutrition in which the ability of the organism to utilize carbohydrates (starch, sugars, etc.), as it normally does, is more or less impaired. In the more severe cases there is added to this a disturbance in the utilization of fats, and perhaps also of proteins, by the body.

While there are various methods of treatment of diabetes, all recent authorities agree in placing the chief emphasis on the rôle of diet in the management of this disease. Janeway, Benedict, Joslin, Fletcher, Faltz, Strauss, von Noorden and other writers on diabetes could be quoted at length in support of this view. The importance of restricting the carbohydrates in certain cases and certain aspects of diabetes is admitted by practically all competent authorities. In order to prescribe a starch-free and sugar-free dietary, which all will admit is necessary at times, and to know with precision the actual amount of the carbohydrates contained in the various available foods, the physician is obliged to rely on the cooperation of the chemist to furnish this requisite information. In answer to this demand the writer, in cooperation with Prof. L. B. Mendel, of Yale University, undertook in 1913 an extensive review of the special foods offered for the use of diabetics in the American markets.²

There is some evidence that certain forms of starch or certain carbohydrates are more readily

utilized by diabetics than are others. Accordingly one hears of the potato diet, the inulin diet, levulose feeding, etc. Certain dietary measures, such as the "rice treatment" and "oatmeal treatment," are employed for therapeutic effects, the reason for which is not yet adequately understood. These aim primarily to increase the tolerance of the patient or to affect favorably the acidosis attendant upon many cases of diabetes. The discussion of these special treatments is beyond the limits of this paper.

Bread is the one article of diet which enters most extensively into the daily regimen of people in all walks of life. The exclusion of it from the dietary is perhaps the most irksome of all the restrictions to which the diabetic may be subjected in the effort to reduce his intake of carbohydrates. Accordingly, substitutes for bread, resembling it in texture and flavor, have been introduced from time to time. Gluten bread, aleuronat bread, aerated or "Luft" bread and certain nut breads are types of these bread substitutes. Similarly flours have been prepared from the soy bean, almond, peanut, Iceland moss, casein, etc., from which breads and other baked products are made in connection with leavening agents. The "Luft-brot," furthermore, is frequently employed not so much as a complete substitute for bread as to serve as a vehicle for noncarbohydrate foods, such as butter, cheese and certain nut pastes. Its form and flavor furnish a grateful deception to those deprived of ordinary bread.

In preparing gluten bread, gluten flour is used,

¹This is the first of a series of papers by Mr. Street, designed to be a guide in hospitals for those internists who demand scientific accuracy in the special feeding of their cases.

²Rept. Conn. Agr. Expt. Station, 1913, pt. 1, sect. 1, pp. 1-95.

which in turn is made from ordinary wheat flour by the more or less complete washing away of the starch. Unfortunately the so-called gluten flours on the market are most variable products, and few of them are satisfactory from the standpoint of starch content. Of 67 "gluten" flours recently examined by the writer, 20 did not even satisfy the low government standard of 5.6 percent nitrogen, 12 contained less than 13 percent carbohydrates, while the remaining 55 ranged from 28 to 76 percent. Owing to the unreliability of most gluten flours now on the market, many physicians have given up their use. White bread ordinarily contains about 53 percent, and the flour from which it is prepared about 75 percent carbohydrates. When it is remembered that many of the brands of gluten flour widely advertised and sold in American markets contain 50 percent or more of starch, the seriousness of the situation from the standpoint both of the unsuspecting diabetic and of the careful clinician is apparent. Self-medication is always a dangerous pastime, and the use of the special diabetic foods, without a physician's supervision, is generally a hazardous proceeding. Even if the conscientious manufacturer does state on his label the percentage of starch present, what advantage is derived from prescribing or using a flour or bread or baked product supposedly of unique value to a patient, yet differing at most from the commonest, inexpensive, palatable bread by only a few grams of starch in an entire day's ration?

In the complete report of the writer the analyses of nearly 500 special diabetic products are given, including the good, bad, and indifferent. In this paper attention is called only to those which are relatively low in carbohydrates, for while the writer grants the desirability of feeding the patient all the carbohydrates he can tolerate, and recognizes the possible value of the oatmeal, rice, potato and other treatments, in which a relative abundance of carbohydrates is fed for a limited period, it would seem that a low percentage of carbohydrates should be a requisite for a "diabetic" food. Certainly no special food containing nearly as much carbohydrates as a normal food of the same class, and sold at an absurdly exorbitant price, should be entitled to the name "diabetic."

In the tables which follow, all protein values, for the sake of uniformity, were obtained by multiplying the nitrogen by the conventional factor 6.25. In the case of pure gluten products this method gives too high a percentage of protein and too low a percentage of carbohydrates, while in the case of pure casein products the reverse is true. However, inasmuch as the differences due

to the protein factor used are relatively small except in the higher grade flours, which are seldom fed alone or in considerable quantity, the carbohydrate values given in the tables can be used without any important effect on the actual content of the daily ration. To prevent confusion it should also be understood that the term "nitrogen-free extract" includes all the carbohydrates except the crude fiber. In the special foods under consideration nitrogen-free extract and carbohydrates may almost be regarded as synonymous, as the percentage of crude fiber present is usually extremely small. A question mark (?) under the starch column means that starch was not reported or determined in that particular food; it may or may not have been present. All the analyses reported in the tables were made in the laboratory of the Connecticut Agricultural Experiment Station except in the few instances where the contrary is indicated.

GLUTEN FLOURS.

(SEE TABLE I.)

The gluten flours illustrate the difficulty of the dietitian's selection of proper foods of this class for the feeding of the diabetic patient. I have included in Table I only such brands as complied with the very low present governmental standard of 5.6 percent nitrogen (equivalent to 35 percent protein, using the factor 6.25). There are other brands on the market containing as little as 14 or 18 percent protein with 65 or 73 percent nitrogen-free extract. Such preparations, of course, have no just claim to the name "gluten flour." But even the so-called "standard" gluten flours have an extremely wide range of composition. Our table shows brands ranging from 37.3 to 86.9 percent protein, and from 46.8 percent starch to a mere trace. The first nine brands listed in the table are more strictly "ground gluten" than gluten flour, as they are scarcely finely enough ground to warrant being called flours. They are characterized by their very high content of protein and correspondingly low percentage of starch. They are admirably adapted for use in a strict diet or in one where it is desired to establish the patient's carbohydrate tolerance. Their calorific value naturally is very similar, ranging from 359 to 380 calories per 100 gms. On the other hand their cost warrants serious attention. While it is granted that the removal of the last traces of starch from a gluten flour is a laborious and consequently expensive process, and while the manufacturer who succeeds in doing this is entitled to all credit for producing an article of the highest grade, still the user of these foods may well pause to consider whether quite as good results may not be secured by feeding a smaller amount of a flour

TABLE I—GLUTEN FLOURS.

Date of Analysis.	Brand.	Protein (N x 6.25).	Fat.	Nitrogen-free Extract.	Starch, by Diastase Method.	Calculated Calories per 100 grms.	Cost per Pound.
		%	%	%	%		
1912	Barker's Gluten Food, "A".....	86.9	0.5	4.6	Trace	370	\$1.56
1913	Barker's Gluten Food, "B".....	85.1	0.6	7.2	3.7	375	1.19
1913	Barker's Gluten Food, "C".....	84.1	0.6	8.6	3.4	377	1.18
1912	Kellogg's 80% Gluten.....	81.3	0.9	7.9	6.2	365	.64
1913	Metcalf's Vegetable Gluten.....	80.4	1.5	9.8	5.9	374	.50
1913	Health Food Co.'s Pure Washed Gluten Flour.....	80.3	1.6	11.1	7.0	380	.26
1907	Bischof's Gluten Flour.....	79.8	3.6	5.0	?	372	.....
1913	Loeb's Imported Gluten Flour.....	76.3	0.9	11.8	4.4	361	.40
1913	Van Abbott's Gluten Flour.....	75.1	0.9	12.6	12.4	359	.72
1913	Van Abbott's Gluten Semola.....	51.4	2.9	32.4	28.2	361	.....
1913	Sprague, Warner & Co.'s Richelieu Gluten Flour.....	49.7	1.2	39.7	31.6	368	.23
1913	Gilman's Gluten Flour.....	47.3	2.0	40.4	31.4	369	.11
1913	Farwell & Rhines' Gluten Flour.....	46.3	1.1	42.9	32.8	367	.13
1913	Loeb & Co.'s Gluten Flour.....	43.9	1.1	44.4	39.8	363	.21
1913	Kellogg's 40% Gluten Flour.....	43.7	0.9	46.0	40.5	367	.13
1913	Pieser-Livingston Co.'s Gluten Flour.....	43.3	1.3	46.2	38.4	370	.14
1913	Health Food Co.'s Protosac Gluten Flour.....	42.7	1.7	46.4	36.3	372	.22
1913	Hoyt's Gum Gluten Flour, Ground.....	41.4	1.4	47.4	40.4	368	.15
1913	Loeb's Pure Gluten Flour.....	40.3	2.4	46.3	39.6	368	.21
1913	Martindale's Special Gluten Flour.....	40.3	1.5	49.1	41.4	371	.15
1913	Bond's Diabetic Flour.....	40.2	1.3	48.3	40.6	366	.09
1911	Johnson's Educator Standard Gluten Flour.....	40.1	1.4	50.2	40.9	374	.13
1913	Health Food Co.'s Glutosac Gluten Flour.....	39.9	2.3	47.5	36.9	370	.19
†1909	Kellogg's 40% Gluten Flour, Self-Raising.....	38.7	1.0	50.2	?	373	.....
1913	Rademann's Diabetiker Mehl.....	37.9	0.8	50.7	46.8	362	.37
1913	Health Food Co.'s Proniren (Griddle Cake Flour).....	37.3	1.2	47.3	37.7	349	.19

‡See Fetterolf, Univ. of Penn. Med. Bull., Sept., 1909. †Large calories based on an average available fuel value of 4 calories per gram for protein and nitrogen-free extract and 9 calories per gram for fat. *See page 74.

containing somewhat more starch, which may be secured at from one-sixth to one-fourth of the cost. It will be noted that the cost of the nine brands under discussion ranges from 26 cents to \$1.56 per pound, a wide range indeed. The more expensive and more nearly starch-free flours, however, are extremely valuable in a very strict diet.

Concerning the remaining seventeen gluten

flours given in Table I little need be said. The protein ranges from 51.4 to 37.3 percent, and conversely the starch from 28.2 to 46.8 percent. In other words, they contain from 40 to 62 percent as much starch as found in ordinary wheat flour. Where as much as 25 percent of starch is permissible in a food intended for a diabetic, a half portion of ordinary flour in the ration will not contain as much starch as a full portion of most of these

TABLE II—OTHER FLOURS.

Date of Analysis.	Brand.	Protein (N x 6.25).	Fat.	Nitrogen-free Extract.	Starch, by Diastase Method.	Calculated Calories per 100 grms.	Cost per Pound.
		%	%	%	%		
1913	Menley & James' Glidine.....	91.4	0.8	1.0	0.0	377	\$2.40
1906	Callard, Stewart & Watts' Casoid Flour.....	*85.6	0.5	*1.4	0.0	353	.75
1913	Health Food Co.'s Almond Meal.....	50.3	14.8	17.9	Trace	406	.97
1913	Jireh Cottonseed Flour.....	49.1	12.7	21.3	6.0	396	.18
1913	Cereo Soy Bean Gruel Flour.....	43.1	21.4	24.9	Trace	465	.49
1913	Waukesha Hepco Flour.....	42.9	20.8	22.4	Trace	448	.....
1913	Health Food Co.'s Protosoy Soy Flour.....	42.3	19.8	24.5	Trace	446	.45
1913	Jireh Soja Bean Meal.....	42.3	18.2	25.8	Trace	435	.30
1913	Metcalf's Soja Bean Meal.....	41.0	20.0	25.0	Trace	444	.50
1913	Van Abbott's Almond Flour.....	24.6	58.6	7.9	0.0	657	.45

*If the correct factor, 6.37, is used, the protein amounts to 87.3, and the nitrogen-free extract, obtained by difference, entirely disappears.

TABLE III—BREADS AND BAKERY PRODUCTS.

Date of Analysis.	Brand.	Protein (N x 6.25).	Fat.	Nitrogen-free Extract.	Starch, by Diastase Method.	Calculated Calories per 100 gms.	Cost per Pound.
	<i>Soft Breads.</i>	%	%	%	%		
1913	Ferguson's Gluten Bread.....	24.2	3.1	33.6	25.2	259	\$0.19
1906	Health Food Co.'s Glutosac Bread.....	27.2	2.7	36.1	*29.9	278	.....
1906	Health Food Co.'s Protosac Bread.....	32.5	1.6	37.0	*33.1	292	.....
1913	Loeb's P. & L. Genuine Gluten Bread.....	25.8	2.7	27.8	23.9	239	.14
	<i>Hard Breads, Biscuits, etc.</i>						
1907	Bischof's Diabetic Gluten Bread.....	73.1	0.5	14.3	?	354	.....
1912	Brusson Gluten Bread.....	37.3	1.8	42.1	40.1	354	1.33
†1909	‡Almond Biscuit, Plain.....	28.3	28.0	36.8	?	512	.....
†1909	‡Almond Shortbreads.....	19.5	52.1	20.7	?	630	.....
1913	‡Casoid Biscuits No. 1.....	66.8	18.8	5.8	4.0	460	3.00
†1909	‡Casoid Biscuits No. 2.....	57.8	25.5	5.6	0.0	483	.....
†1909	‡Casoid Biscuits No. 3.....	54.3	25.0	7.8	Trace	473	.....
†1909	‡Casoid Dinner Rolls.....	78.0	11.1	2.1	?	420	.....
†1909	‡Casoid Lunch Biscuit.....	25.5	44.9	21.6	?	593	.....
†1909	‡Casoid Rusks.....	37.0	32.3	20.8	?	522	.....
†1909	‡Cocoonut Biscuit and Saccharin.....	16.6	61.3	16.4	?	684	.....
†1909	‡Ginger Biscuit and Saccharin.....	17.1	58.6	18.1	?	668	.....
1913	‡Kalari Batons.....	43.2	39.0	7.4	0.0	553	2.13
†1909	‡Kalari Biscuits.....	56.9	31.4	1.7	?	517	.....
†1909	‡Prolactic Biscuit.....	42.9	27.5	19.3	?	496	.....
1913	Charrasse Biscuits Croquettes au Gluten.....	34.3	5.4	52.3	30.6	395	3.16
1913	Charrasse Gluten Exquis Biscuits aux Amandes.....	18.1	23.8	50.6	25.5	489	3.60
1913	Charrasse Gluten Fleur de Neige Pain.....	35.9	12.5	42.8	25.1	427	3.57
1913	Charrasse Mignonettes au Gluten.....	40.1	5.7	43.6	27.3	386	3.52
1913	Charrasse Pain de Gluten.....	40.8	5.3	43.5	27.2	385	1.41
1913	Charrasse Tranches Grillés pour Potage.....	40.6	3.6	45.5	28.8	377	3.36
1913	Fromm's Luft Bread.....	50.9	1.0	30.7	23.4	335	2.33
1913	Fromm's Uni Bread.....	71.7	1.7	9.4	2.9	340	2.25
1914	Fromm's Conglutin-Drops.....	50.8	1.1	36.1	29.2	358	.....
1914	Goldscheider's Cocosnuss-Biskuits für Diabetiker.....	34.4	†45.4	13.9	0.0	...	.....
1914	Goldscheider's Vanille-Biskuits für Diabetiker.....	46.4	†30.3	16.8	0.0	...	.....
1914	Goldscheider's Honigküchen für Diabetiker.....	40.3	†38.8	13.9	0.0	...	.....
1913	Health Food Co.'s Alpha Diabetic Wafers.....	66.1	13.6	11.3	Trace	432	2.58
1913	Health Food Co.'s No. 1 Proto Puffs.....	76.3	2.9	10.7	4.3	374	1.13
1913	Health Food Co.'s No. 2 Proto Puffs.....	56.6	2.1	30.7	19.0	368	.95
1913	Health Food Co.'s Protosoy Diabetic Wafers.....	43.1	24.9	21.2	4.7	481	1.08
1914	Heudebert's Pain d' Aleurone pour Diabétiques.....	76.1	1.5	9.2	4.2	354	1.42
1914	Heudebert's Pain de Gluten pour Diabétiques.....	80.7	0.8	6.5	3.4	356	.77
1913	Huntley & Palmer's Akoll Biscuits.....	54.5	27.4	6.8	Trace	492	1.05
1913	Johnson Educator Gluten Bread Sticks.....	35.9	7.2	45.8	37.5	392	.65
1911, '12, '13	Kellogg's 40% Gluten Biscuit. (Average of the three years.)	42.7	0.8	46.7	38.4	365	1.02
1912	Kellogg's 80% Gluten Biscuit.....	82.4	0.9	4.4	4.7	355	.72
1913	Loeb's Gluten Luft Bread.....	34.1	8.7	47.4	40.1	404	.84
1913	Pokorny's Diabetiker-Zwieback.....	32.9	48.0	10.4	3.6	605	.....
1913	Pure Gluten Food Co.'s Gum Gluten Biscuit Crisps.....	42.9	0.7	48.5	39.3	372	1.07
1913	Pure Gluten Food Co.'s Gum Gluten Dainty Fluffs No. 1.....	86.0	0.6	5.0	5.0	369	.....
1913	Rademann's Diabetiker-Biskuits.....	29.6	19.6	44.5	25.9	473	1.51
1913	Rademann's Diabetiker-Cakes.....	29.6	13.5	47.2	39.1	429	1.65
1913	Rademann's Diabetiker-Dessert-Gebäck.....	22.2	42.4	27.5	5.9	580	2.52
1913	Rademann's Diabetiker-Makronen.....	23.2	48.0	20.6	3.0	607	3.29
1913	Rademann's Diabetiker-Stangen.....	17.7	44.2	29.5	21.4	586	1.55
1913	Sanity Diabetiker-Bisquits.....	25.8	18.2	45.3	35.4	448	.....
1913	Sanity Mandelgebäck für Diabetiker.....	32.5	48.6	10.8	4.0	611	.....
1913	Van Abbott's Caraway Biscuits for Diabetics.....	35.6	37.5	15.9	8.6	544	1.00
1913	Van Abbott's Diabetic Rusks for Diabetics.....	70.9	0.8	16.0	12.6	355	3.63
1913	Van Abbott's Euthenia Biscuits.....	35.8	40.7	13.2	6.9	562	1.49
1913	Van Abbott's Gluten Biscottes or Rolls.....	51.6	2.3	33.0	29.8	359	1.30
1913	Van Abbott's Gluten Bread or Slices.....	54.1	2.2	30.9	27.4	361	1.51
1913	Van Abbott's Gluten Butter Biscuits for Diabetics.....	44.1	33.2	12.7	9.0	526	1.40
1913	Van Abbott's Ginger Biscuits for Diabetics.....	34.6	39.4	16.7	10.9	560	.77
1913	Van Abbott's Midolia Biscuits.....	17.6	36.4	31.6	13.4	524	.32
1913	Van Abbott's Walnut Biscuits for Diabetics.....	20.9	57.2	12.3	Trace	648	1.22
1913	Waukesha Hepco Dodgers.....	41.6	21.3	20.7	Trace	441	.....

*Determined by diastase method, without previous washing with water, and calculated as starch. †Fetterolf, Univ. of Penn. Med. Bull., Sept., 1909. ‡Made by Callard, Stewart & Watt. §Includes crude fiber. ¶Includes some glycerine.

standard gluten flours. The percentage of protein will naturally be much higher than that found in ordinary flour, but it must never be forgotten that these special foods are recommended for the diabetic's use not so much because they are high in protein, but because they are assumed to be low in starch, an assumption which analysis promptly disproves in many cases. Again the range in cost is very wide, from 9 to 37 cents per pound.

OTHER FLOURS.

(SEE TABLE II.)

Under this caption are listed in Table II certain typical flours, all of which are admirably adapted for strict diabetic feeding. With the exception of the cottonseed flour, which contains 6 percent of starch, they are almost starch-free. The *Casoid Flour* is also essentially carbohydrate-free, as the small percentage reported, 1.4, is due to our use of the conventional protein factor, as before stated, for the sake of uniformity. If the true casein factor, 6.37, were used, even this small percentage would practically disappear. *Glidine* is prepared from wheat and *Casoid Flour* from casein. The brand names indicate the source of the other products. The almond "meal" and almond "flour" differ chiefly in the fact that from the former a large portion of the fat has been extracted, thereby increasing the relative percentages of protein and nitrogen-free extract. The soy bean flours appear to be particularly valuable preparations, as they are natural products, almost starch-free. Analyses made in the writer's laboratory show that they contain small amounts of sucrose and raffinose, but that the bulk of their nitrogen-free extract is made up of pentosan, galactan and other hemi-celluloses, which clinical experience indicates do not increase the glycosuria of the diabetic. The range in price from 30 to 50 cents per pound for products of practically the same composition hardly seems justified.

SOFT BREADS.

(SEE TABLE III.)

Only a limited number of brands of soft bread are offered in our markets, and the use of these is naturally restricted to the more or less immediate vicinity of their place of production. Such breads, unlike the hard breads, rapidly become stale. Of the four brands listed *Protosac Bread* contains considerably more protein and *Loeb's P. & L. Genuine Gluten Bread* somewhat less nitrogen-free extract than the other brands. The starch content is about half that of ordinary bread.

HARD BREADS, BISCUITS, RUSKS, ETC.

These products are of the most diverse character. Some are exceedingly rich in protein and low

in starch, while with others the reverse is true. The fat content also is extremely variable, the brands containing nut meals and chocolate showing very high percentages. Likewise the calorific value has a wide range, namely, from 335 to 684 calories per 100 gms. Ordinary biscuits contain about 72 percent of nitrogen-free extract, and it will be noted that all the brands listed contain very much lower percentages than that, seldom over 50 percent. Aside from the starch content, the cost of these products must be considered. This ranges from 32 cents to \$3.63 per pound. The brands costing \$3.00 or more per pound contain from 18.1 to 70.9 percent protein and from 52.3 to 5.8 percent nitrogen-free extract, showing that a high price by no means necessarily indicates that the particular food is especially fitted for the use of the diabetic. The relative expensiveness of the imported products is well shown by a comparison of two of the *Fromm* brands with two very similar preparations of the *Health Food Co.* *Fromm's Uni Bread* and *No. 1 Proto Puffs*, while totally dissimilar in appearance, resemble each other very closely in composition; the former costs \$2.25 per pound, the latter \$1.13, or about half. Similarly, *Fromm's Luft Bread*, very similar in composition to *No. 2 Proto Puffs*, costs \$2.33 per pound, while the *Puffs* cost but 95 cents. It is hard to see how the German preparation can be sold in competition with the purely American product, which is quite as good and costs less than half as much.

The table also illustrates another important point, namely, that in only a few instances can the buyer depend upon the manufacturer's name to insure the integrity of his product. Most manufacturers produce foods of different grade from the standpoint of starch content. (Many of these inferior products are not listed in Table III). Certain *Fromm* products, for instance, contain as much as 68.4 percent of nitrogen-free extract, certain *Health Food Co.* products as much as 58.5 percent, certain *Kellogg* products as much as 57.7 percent, and certain *Rademann* brands up to 58.4 percent. The *Charrasse*, *Jirch Diabetic Food Co.* and *Johnson Educator Food Co.* diabetic biscuits, crackers, rusks, etc., which the writer has analyzed, uniformly ran high in nitrogen-free extract—*Charrasse* from 42.8 to 73.4 percent, *Jirch* from 46.3 to 72.3 percent, and *Johnson* from 45.8 to 68.1 percent. Many of these products have no more right to be called "diabetic" foods than wheat bread, oatmeal or potatoes. On the other hand, in the writer's experience, the *Callard*, *Stewart and Watt*, and the *Van Abbott* preparations uniformly contain relatively low percentages of nitrogen-free extract.

TABLE IV—CHOCOLATE AND COCOA.

Date of Analysis.	Brand.	Protein (N x 6.25).	Fat.	Nitrogen-free Extract.	Starch.	Calculated Calories per 100 gms.	Cost per Pound.
		%	%	%	%		
1913	Brusson Chocolat with Added Gluten.....	15.9	49.7	26.4	9.2	617	\$1.63
1913	Fromm's Conglutin-Diabetiker-Schokolade.....	17.6	39.1	32.7	4.3	553	1.89
1914	Goldscheider's Dessert-Schokolade für Diabetiker.....	11.4	57.6	25.4	5.0	666	.....
1914	Goldscheider's Mocca-Schokolade für Diabetiker.....	10.2	60.2	23.5	4.1	677	.....
1914	Goldscheider's Nuss-Schokolade für Diabetiker.....	14.6	54.4	23.3	6.9	641	.....
1914	Goldscheider's Orange-Schokolade für Diabetiker.....	11.4	57.6	24.9	5.0	664	.....
1913	Rademann's Diabetiker Schokolade.....	17.5	57.6	16.9	3.8	656	2.06
1913	Sanity Laevulose Schokolade.....	11.4	43.4	35.6	6.2	579	.....
1913	Sanity Mandel-u. Nusschokolade mit Laevulose.....	12.0	53.9	26.2	4.3	638	.....
1913	Sanity Mani-Schokolade.....	10.0	43.7	37.9	4.8	585	.....
1913	Sanity Diab. Mandel-Nuss-u. Schokolade Bonbons.....	12.5	28.8	37.1	Trace	458	.....
1913	Casoid Chocolate Almonds.....	22.3	51.8	16.1	Trace	620	2.12
1913	Charrasse Gluto-Cacao.....	21.5	22.2	40.1	16.3	446	.....
1913	Rademann's Diabetiker-Cacao.....	17.6	23.6	44.7	10.7	462	1.41

CHOCOLATE AND COCOA.

(SEE TABLE IV.)

Plain chocolate, cocoa, milk chocolate, and sweet chocolate, on the average, contain about 25, 38, 51, and 67 percent of nitrogen-free extract, respectively. In judging the value of a diabetic chocolate or cocoa, in comparison with the ordinary commercial preparations, these values must be kept in mind. Certain European manufacturers have substituted levulose for cane sugar or milk sugar, on the theory that levulose is less objectionable for diabetics than other forms of sugar. So high an authority as von Noorden, speaking of this subject, writes as follows in his *Die Zuckerkrankheit und ihre Behandlung*, 1910, p. 279:

"That levulose, milk sugar and inulin are more useful than the other carbohydrates is a common opinion, but the importance of their use in practice does not correspond with the theory. In light cases the form of carbohydrate makes little difference; in severe cases the advantage from using levulose, milk sugar, etc., is only slightly greater than from using bread and flour. . . . Only in certain cases does it appear to me that the special form of carbohydrate possesses any particular significance."

In addition to this substitution of carbohydrate, it is apparent that the nitrogen-free extract of a chocolate or cocoa may be reduced by the addition of nitrogenous matter, such as casein or other protein preparations.

In Table IV are listed eleven brands of diabetic chocolate on the American market. They range from 16.9 to 37.9 percent nitrogen-free extract, in only three cases appreciably lower than in average plain chocolate, but in all cases considerably lower than found either in milk or sweet chocolate. The cost of these chocolates, from \$1.63 to

\$2.06 per pound, is out of all proportion to their value. *Casoid Chocolate Almonds* are a confection relatively low in carbohydrates, and containing only a trace of starch; their cost, however, \$2.12 per pound, is extremely high.

The two cocoas listed show no advantage over ordinary cocoa, containing as they do slightly more nitrogen-free extract than the commercial article. *Jireh Diabetic Cocoa*, not listed in our table, contains about twice as much carbohydrates as pure cocoa, barley starch being added. *Rademann's Cocoa*, at \$1.41 per pound, in the writer's opinion, possesses no advantage to the diabetic over ordinary cocoa.

TABLE V—JAMS, JELLIES AND FRUIT JUICES.

Date of Analysis.	Brand.	Invert Sugar.
		%
1913	Bernhard's Kirschen mit Stein.....	3.81
1913	Casoid Sugarless Jam.....	1.46
1913	Casoid Sugarless Marmalade.....	1.24
1913	Muller's Tomatoes für Diabetiker.....	7.30
1913	Rademann's Entzuckert Conservierte Früchte.....	3.41-3.67
1913	Rademann's Erdbeeren in eigenem Saft..	5.72
1913	Rademann's Preiselbeeren ohne Zucker.	7.00
1913	Rademann's Feinste Johannisbeer Saft..	0.85
1913	Sanity Huckleberry Wine for Diabetics..	0.14
1913	Van Abbott's Diabetic Table Jelly, Orange	0.00

JAMS, JELLIES, AND FRUIT JUICES.

(SEE TABLE V.)

When it is remembered that ordinary jams, preserves, and marmalades contain 50 percent or more of sugars, it is evident that the preparations listed in Table V are not without merit. The total

sugars, calculated as invert, range from none at all to 7 percent. The *Rademann* fruit preparations, however, are artificially colored with coal-tar dyes, and although the use of these dyes is sanctioned by the U. S. Government, any sort of coal-tar color would seem to be out of place in foods intended primarily for the use of invalids.

Muller's Tomatoes fuer Diabetiker contain only 7.30 percent of invert sugar, considerably less than found in ordinary tomato preserves, but more than contained in many ketchups and most brands of canned tomatoes. *Sanity Huckleberry Wine* is a very dry product, almost sugar-free.

MISCELLANEOUS FOODS.

(SEE TABLE VI.)

Under this heading are grouped certain breakfast foods, noodles, nuts and nut preparations, sugar-free milk, and baking powder. Certain

betic foods the physician buys them not because they are rich in protein, but because they are supposed to show a marked reduction in the diabetic's worst enemy, carbohydrates.

There are "diabetic" macaroni, vermicelli, spaghetti, and noodles on the market which contain from 70 to 76 percent of nitrogen-free extract, or as much as the ordinary product. The two brands of noodles shown in the table are relatively low in this respect, but it is a question whether from the diabetic's standpoint the reduction in carbohydrates warrants the payment of from 58 to 70 cents per pound for them.

The two brands of pine nuts (*pignolias*) represent a very useful and important class of foods for the diabetic. Most of our ordinary nuts, except the chestnut, are very low in starch. Furthermore, their protein and fat content is high, and, what is probably almost as important, they offer

TABLE VI—MISCELLANEOUS FOODS.

Date of Analysis.	Brand.	Protein (N x 6.25).	Fat.	Nitrogen-free Extract.	Starch.	Calculated Calories per 100 gms.	Cost per Pound.
		%	%	%	%		
1913	Brusson Farine au Gluten.....	33.9	0.6	53.8	48.8	356	\$0.46
1913	Health Food Co.'s Manana.....	37.6	1.9	46.8	31.0	355	.60
1911	Pure Gluten Food Co.'s Gum Gluten Breakfast Food.....	37.8	1.3	51.8	37.9	370	.20
1911	Pure Gluten Food Co.'s Gum Gluten Granules.....	45.5	1.6	43.6	32.3	371	.20
1913	Loeb's Home Made Noodles.....	41.8	5.5	41.7	36.7	384	.70
1911	Pure Gluten Food Co.'s Gum Gluten Noodles.....	36.6	2.4	51.4	42.0	374	.58
1913	Jireh Diabetic Pine Nuts (<i>Pignolias</i>).....	39.7	49.4	3.4	0.0	617	.75
1913	Kellogg's Pine Nuts.....	38.0	49.6	4.2	0.0	615	.75
1913	Kellogg's Nut Bromose.....	17.1	26.8	39.4	3.2	467	.61
1906	Kellogg's Sanitas Almond Butter.....	22.6	61.5	8.2	*3.7	677	....
1906	Kellogg's Sanitas Nut Butter.....	28.8	50.5	13.9	*9.1	625	....
1906	Kellogg's Sanitas Nut Meal.....	29.0	51.7	12.1	*8.9	630	....
1906	Kellogg's Sanitas Nuttolene.....	12.7	21.8	6.3	?	272	....
1906	Kellogg's Sanitas Protose.....	22.6	9.2	3.6	?	188	....
1913	Nashville San. Co.'s Malted Nut Food.....	24.7	42.7	27.5	3.4	593	.25
1913	Nashville San. Co.'s Nut Butter.....	28.0	52.6	13.0	3.8	637	.16
1913	Nashville San. Co.'s Nutcysa.....	12.9	21.0	6.3	Trace	266	.17
1913	Nashville San. Co.'s Nutfoda.....	20.8	8.0	6.8	Trace	182	.15
1913	Peanut Butter (ave. 14 brands).....	29.3	47.2	15.4	4.6	604	.38
1913	Bouma Sugar-Free Fat Milk.....	2.4	5.3	0.0	0.0	57	30 cts. for 14.5 oz.
1913	Whiting's Sugar-Free Milk.....	5.7	7.2	Trace	0.0	88	25 cts. for 8 oz.
1913	Casoid Baking Powder.....	....	....	....	0.0	...	1.03
1906	Jireh Baking Powder.....	....	....	....	15.0	...	.60

*Determined by the diastase method, without previous washing with water, and calculated as starch.

"diabetic" breakfast foods on the market contain from 69 to 77 percent of nitrogen-free extract. The four brands listed are an improvement on such products, but still contain about two-thirds as much nitrogen-free extract as ordinary cereal breakfast foods. They are very much higher in protein than the ordinary product, but again we must emphasize the fact that in purchasing dia-

the diabetic a really appetizing food. Of the ten manufactured nut preparations listed all but *Nut Bromose* and *Malted Nut Food* are extremely low in nitrogen-free extract. These are admirably adapted to the use of the diabetic, especially in connection with "Luft" breads or biscuits, themselves showing low percentages of carbohydrates. Likewise peanut butter serves well for this pur-

pose, as it contains on the average less than 5 percent of starch, has a high calorific value, and is relatively cheap.

The only two brands of sugar-free milk on the American market, as far as the writer knows, are the *Whiting* product prepared in Boston, and the imported *Bouma* bread sold in New York City. These are both true to name, the *Whiting* milk being much the richer, and likewise costing considerably more.

The *Casoid Baking Powder* consists of ground casein and suitable leavening chemicals, and contains no starch. The *Jireh Baking Powder*, on the other hand, contains 15 percent of starch, considerably more than many of the ordinary brands on the market. From the economy standpoint the diabetic might better prepare his own baking powder in small quantities at a time, using two parts of cream of tartar to one of bicarbonate of soda, neither of which, when pure, contains any starch.

ADDRESSES OF MANUFACTURERS.

The following is a list of the manufacturers or agents, with addresses, whose brands are given in the accompanying tables. *This list is given simply as a convenience, and is intended in no sense as a recommendation of any specific firm:*

Herman Barker, Somerville, Mass.; A. Beauvais & Co., 11 West 27th St., New York; Berliner Milchkur-Anstalt, Hellersdorf, Berlin W. 10, Germany; Bischof and Co., London, England; Brusson Jeune, Villemur, Haute-Garonne, France; Callard, Stewart & Watt, 74 Regent St., London, England; Cereo Co., Tappan, N. Y.; Farwell & Rhines, Watertown, N. Y.; Ferguson Bakery, 853 Albany St., Boston, Mass.; Fromm & Co., Dresden, Germany; O. B. Gilman, 205 Tremont St., Boston, Mass.; Glutinerie de Vichy et de la Méditerranée, 4 Rue Sévigné, Vichy, France (Charrasse); Karl Goldscheider, 4 Naglergasse, Karlsbad, Austria; The Health Food Co., 25 Lexington Ave., New York; Ch. Heudebert, Paris, France; Huntley & Palmer, Reading, England; Johnson Educator Food Co., Boston, Mass.; The Kellogg Food Co., Battle Creek, Mich.; Loeb's Diabetic Food Bakery, 505 West 171st St., New York; E. Loeb & Co., 83 Beaver St., New York; Thos. Martindale & Co., 10th and Market Sts., Philadelphia, Pa.; Mayflower Mills, Fort Wayne, Ind.; Menley & James, 168 Duane St., New York; Theo. Metcalf Co., 39 Tremont St., Boston, Mass.; Gustav Muller & Co., 11 West 27th St., New York; Nashville Sanitarium-Food Co., Nashville, Tenn.; Pieser-Livingston Co., 1527 Halstead St., Chicago, Ill.; Pokorny, Teplitz, Austria; Pure Gluten Food Co., 90 West Broadway, New York; Rademann's Nährmittelfabrik, Frankfurt, Ger-

many; Sprague, Warner & Co., Chicago, Ill.; G. Van Abbott & Son, Baden Place, Crosby Row, London, England; Waukesha Health Products Co., Waukesha, Wis.; D. Whiting & Son, 570 Rutherford Ave., Boston, Mass.

The American agents for the Callard, Stewart & Watt preparations are Thos. Leeming & Co., 99 Chambers St., New York; for the Bouma, Brusson, Charrasse, Fromm and Rademann preparations, Gustav Muller & Co., 11 West 27th St., New York; for Huntley & Palmer, William A. Hazard & Co., 29 Broadway, New York; for Heudebert, A. Beauvais & Co., 11 West 27th St., New York; and for Bernhardt, Pokorny and Sanity preparations, Loeb's Diabetic Food Bakery, 505 West 171st St., New York.

HAHNEMANN, NEW YORK, HAS NEW HEAD.

Dr. Wiley Woodbury, Trained Hospital Man, Is Elected Superintendent—Broader Work to Be Done.

Dr. Wiley E. Woodbury, for several years superintendent of the Philippine General Hospital, has been appointed superintendent of the Hahnemann Hospital, located at Sixty-seventh street and Park avenue, New York City.

Dr. Woodbury received his first hospital training at the Grace Hospital, Detroit, where he acted for two years as a member of the hospital staff and as assistant to the superintendent.

He left the Grace Hospital to take the position of assistant physician at the Ionia State Hospital for Criminal Insane, Ionia, Mich. After three years' service in Ionia he received the appointment of superintendent of the Philippine General Hospital, the construction of which had been commenced under the direction of Dr. Victor G. Heiser, who was then and has since been at the head of the Public Health and Marine Hospital Service in the Philippines.

The Philippine General Hospital is the largest American hospital in the Orient and has been constructed and organized along the most advanced lines. Dr. Woodbury continued the construction of the Philippine General Hospital to a total capacity of 550 beds. He organized the hospital in a systematic manner, and at the close of his government contract was induced to remain in charge for a further period of time. The past summer he resigned his position in the Philippines, visited the hospitals of Europe and the East, and returned to his home in Detroit.

The Hahnemann Hospital is a general hospital of 110 beds, and has an endowment of sufficient size to permit it to carry out a large amount of charity work. The president of the board of trustees is Mr. Joseph G. Cannon, of the First National Bank, New York City. The board of trustees have made preparations for a new hospital building, and have accumulated a part of the funds for that purpose. It is the intention of the trustees to organize the hospital to the highest degree of efficiency.

Henry L. Bailey, formerly warden of the Cook County (Ill.) Hospital, at Chicago, has been appointed superintendent of Oak Forest Infirmary, also a Cook county institution, and probably the largest county asylum for the poor in the world. Clayton F. Smith, vice-president of the Board of Local Improvements, is to be the new warden of the Cook County Hospital.



Fig. 1. Walter Reed Hospital—Left to right, main building, sergeant's quarters (two buildings), isolation hospital.

THE WALTER REED UNITED STATES ARMY HOSPITAL, WASHINGTON, D. C.

Nucleus of a Splendid Finishing School for Medical Officers of the Army and Fine Hospital for the Care of Sick and Hurt Officers, Men, and Their Families.

BY OUR WASHINGTON CORRESPONDENT.

THE United States Army General Hospital at the nation's capital was first established at Washington Barracks in 1898. The hospital at that time consisted of the old post hospital, used for administrative purposes, and one-story wooden ward buildings of a temporary character. These, however, demonstrated the great advantages of such an institution, and were the foundation for a permanent army general hospital in Washington.

Colonel William C. Borden, now retired, was the first commanding officer, and it was due to his ceaseless endeavors, with the support of Secretary of War Elihu Root and Surgeon-General O'Reilly that Congress approved the project, and appropriated the sum of \$300,000 to purchase the ground and start the new buildings.

The creation of a general hospital at Washington, available for any emergency, had been recommended since the time of Surgeon-General Hammond as the result of the experience of the Civil War. This need was reexperienced in the Spanish-American War, at which time the hospital had its origin because of the manifest need for such an institution. The last disturbed condition of the country seemed to point with increased emphasis to the wisdom of the original plan.

The hospital is now known as the Walter Reed Army General Hospital, named in honor of the late Major Walter Reed, Medical Corps United States Army, whose investigations revealed the means by which yellow fever is transmitted from one person to another by a certain species of mosquito. In recognition of his work, Congress created a special rank, a colonelcy, for him in his corps, a mark of unusual distinction.

The preliminary studies for the hospital con-

templated an expenditure of \$4,500,000 for the buildings alone, which amount included the cost of an army medical school, army medical museum and library, hospital building, officers' quarters, student officers' quarters, barracks, noncommissioned officers' quarters, female nurses' quarters, store houses, stables, garage, chapel, guard house, entrance lodge, etc. About one-eighth of the estimated cost has been expended.

Congress has not made appropriations that the hospital deserves, and in consequence only small additions have been made from time to time, which process is very expensive and extremely annoying, not only to those in authority, but likewise to the patients. Surgeon-General Gorgas is handicapped by a law passed in 1853, which has never been altered, prohibiting the erection of any building the cost of which exceeds the sum of \$20,000 without the special authority of Congress.

Since the start of the hospital all the surgeons-general of the army, including General O'Reilly, General Torney, and the present surgeon-general, General Gorgas, and the various commanding officers of the institution—Colonels Arthur, Birmingham, Richard, Fisher, and Phillips—have recommended from time to time the erection of the various buildings contemplated in the original project, and have been only partially successful. Former Quartermaster-General Humphrey was very much interested in the hospital, and secured authority to use the appropriations at his disposal for the erection of several buildings. The present chief of the quartermaster corps, General Aleshire, is also lending a helping hand with the appropriations under his control, with the approval of Secretary Garrison of the War Department.

The hospital is intended for extension during a

time of war. With a general hospital established, everything is in readiness at the outbreak of war to extend the institution immediately to any desired size and to accommodate any desired number of patients. This without the trouble, inconvenience, and delay incident to establishing such a hospital *de novo*.

The functions of a general hospital are so much more extensive and so different from those of a post hospital that they cannot be properly conducted in connection with a hospital having post functions. The functions which particularly obtain with this general hospital are such that the establishment is directly under the control of the surgeon-general of the army and the secretary of war. Patients and officers sent to the hospital for special treatment are brought in direct touch with the war office.

The institution is used for instruction in connection with the army medical school, and its work is adapted to the school curriculum, which cannot be satisfactorily done in a hospital under post control. It presents a great advantage as an asso-

treatment by a specialist, the cost of which treatment has ordinarily to be paid for by the Government to civilian specialists. The medical officers of the army attached to this hospital are those having special knowledge and experience.

The hospital permits of the observation of officers ordered before a retiring board, where a careful examination can be given an officer that will more efficiently determine his physical condition than an examination made at a post hospital.

It is intended to arrange for the care of sick children and female patients, members of the families of officers and enlisted men. This will be a great boon, especially to the enlisted men, who can ill afford to provide for hospital treatment for their families. The special equipment of the Walter Reed General Hospital enables the medical corps of the United States army to treat officers and soldiers who have almost hopeless cases, and frequently to effect permanent cures and prevent the retirement of officers and the discharge of soldiers on certificate of disability. When a soldier is discharged on certificate of disability in line of

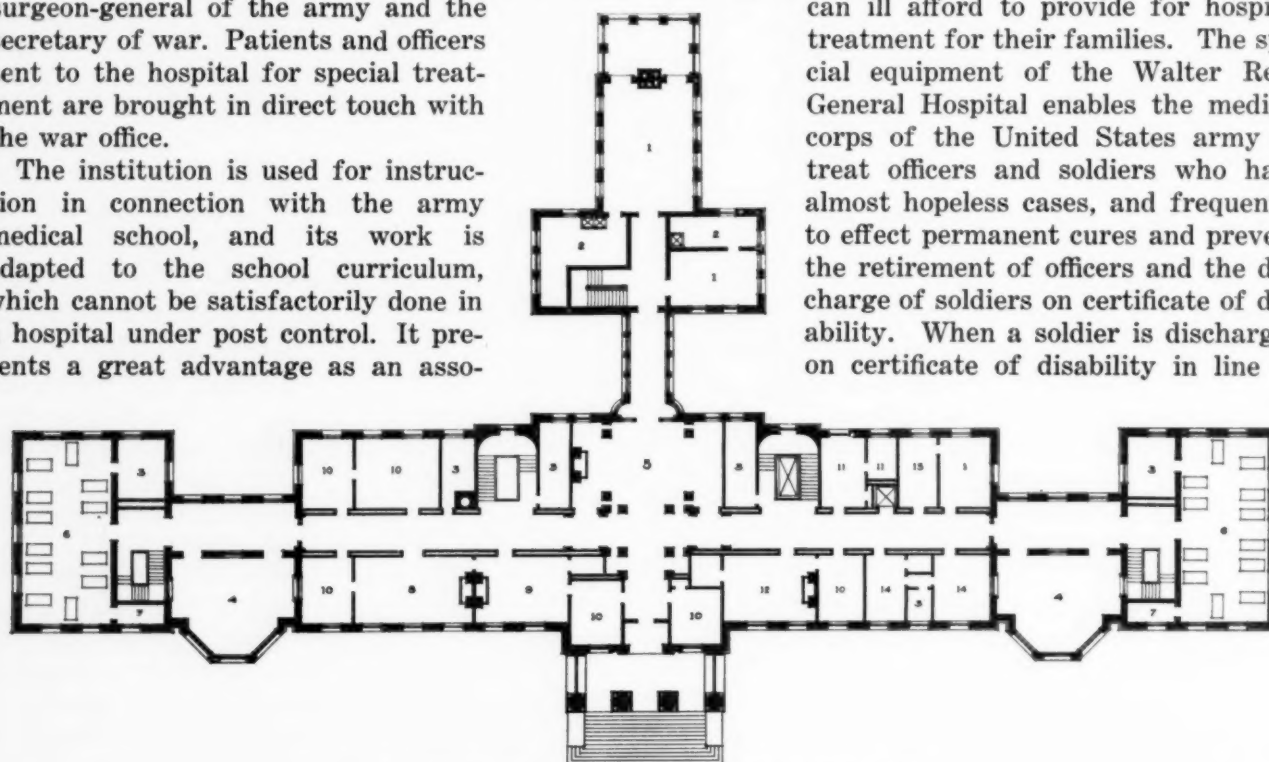


Fig. 2. Walter Reed Hospital—First floor plan of main building.

1. Dining rooms.
2. Pantries.
3. Toilet rooms.
4. Solariums.

5. Reception hall.
6. Wards.
7. Living rooms.
8. Library.

9. Administration office.
10. Executive offices.
11. Dental surgeon.
12. Eye, ear, and throat room.

13. Sewing room.
14. Interns' quarters.

ciated hospital for army diseases from distant and tropical service. The young officers are taught the methods of administering general hospitals, methods of hospital inspection, the use of the roentgen ray apparatus and other diagnostic apparatus, and are instructed in medical and surgical procedures as adapted to the military service. The student officers are instructed in hospital corps drill, the pitching of field hospitals, and become familiar with the hospital corps equipment and medical supplies.

The hospital is intended for the treatment of special cases. Cases continually arise in the military service for which post hospitals do not furnish the necessary facilities for treatment. These cases are mainly difficult surgical cases requiring

duty, he is practically furnished with a prima-facie case for pension, and the reduction in the number of such discharges saves the Government thousands of dollars.

The hospital grounds are located on Georgia avenue, near Takoma, District of Columbia, about one-half hour's ride on the street cars from the center of the city of Washington. The tract contains about fifty acres, and the purchase of an additional eighteen and a half acres is contemplated. A street car line extends direct to the grounds, and, if the additional ground is purchased, the site can be reached on both the east and west sides by street car lines. A steam railroad station is at Takoma, less than a mile distant, accessible by a trolley line.

DESCRIPTION OF BUILDINGS.

The plan of the first floor of the main building, as shown by the illustration, is self-explanatory. The end wings have been erected only one story, the other stories to be added when congressional authority is obtained.

The building is heated by hot water, principally by the indirect system, the heated air being forced



Fig. 3. Walter Reed Hospital—Barracks for enlisted men.

through the ducts by electric fans; direct and direct-indirect radiators are used for auxiliary heat. Ventilation is mainly by the exhaust system. The hospital building has been erected along the lines of the best sanitary methods, and is equipped with up-to-date appliances and conveniences, including vacuum cleaning apparatus, electric call bell system, intercommunicating telephones, electric elevators, freight lifts, etc. The



Fig. 4. Walter Reed Hospital—Isolation building.

work rooms have floors and walls of enameled brick, tile, or marble.

The basement contains dispensary, x-ray rooms, locker rooms for patients' effects, kitchens and pantries, psychopathic wards, recreation room, hydrotherapeutic rooms, gymnasium, store rooms, fan room, toilet rooms, and boiler rooms. The second story is used for wards, which vary in capacity from 1 to 12 beds, with all the necessary

toilet, serving, dining, nurses', and linen rooms. The third floor contains the operating suite, which is modern in every particular, and on this floor are the surgical wards, with their necessary dependencies. The attic of the building is used for storage purposes and convalescents.

Isolation Hospital.—A separate building, is for patients requiring segregation, patients with infectious or contagious diseases, and patients with cases of doubtful diagnosis. The building is equipped with modern appliances for disinfection and sterilization. Insane patients, not considered curable, are sent to the Government Asylum for the Insane at Washington, and tubercular cases are sent to the Army General Hospital at Fort Bayard, New Mexico.

Two sets of officers' quarters have been erected, but it is the intent to erect a sufficient number to



Fig. 5. Walter Reed Hospital—Officers' quarters.

accommodate all the medical officers on duty at the hospital. The buildings are of the best type that have been erected for the military service.

Hospital Corps Barracks Building.—Is for the male nurses of the army. In addition to the dormitories, mess room, kitchen, pantries, etc., the building is provided with class rooms and special diet kitchen for use in connection with the instruction of the members of the hospital corps. The barrack is also provided with a recreation room, reading and study room, barber and tailor shops.

Female Nurses' Quarters.—Accommodate twenty-five nurses in single sleeping rooms, and the building is provided with everything essential to make it a home for the nurses. The building has a reading room, writing room, lecture room, sewing room, laundry, mess room, pantry and kitchen, liberal toilet room facilities, and quarters for female help.

The old tree trunk shown in the photograph, in front of the building, is of historic interest; it is all that is left of the tree that was used by General Early's sharpshooters when he attempted to reach Washington during the Civil War.

There are two double sets of sergeants' quarters for use of the married sergeants of the hospital corps. Each half of the building has five rooms and bath, with cellar under the entire building, containing laundry and heating apparatus.

Store houses have been erected for commissary and quartermaster stores and for medical supplies. Buildings have also been erected for use as a garage, mortuary, and stable.

Army Medical School.—Located at Washington, D. C., was established pursuant to orders of the War Department on June 24, 1893, for the purpose of instructing approved candidates for admission to the medical corps of the army in their duties as medical officers.

The school is at present conducted in a building rented by the Government, but a new building, erected on the Walter Reed Hospital grounds, is

faculty is satisfied that he is qualified mentally, morally, physically, and temperamentally to perform the duties of a medical officer of the army.

The school consists of the school board, the students, and such enlisted men of the medical corps of the army as may be assigned to it for duty. The object of the school is to train the students in such subjects as are appropriate to the duties which an officer of the medical corps of the army may be called on to perform.



Fig. 6. Walter Reed Hospital—Female nurses' quarters. (See text for interesting reference to old tree trunk.)

contemplated, in accord with the original project. This will be most valuable because of its close association with the hospital. In the beginning of the school the student officers were the recently commissioned first lieutenants of the medical corps. The plan to first commission the officer and then assign him to the school was not satisfactory. Students who were found by observation to be temperamentally or otherwise unfitted for their duties as medical officers could not be eliminated except by dismissal following a court-martial. Legislation has since made it possible to assign approved candidates to the school with the rank of first lieutenant in the medical reserve corps, a position the tenure of which may be terminated by the secretary of war at any time. The candidate is not commissioned in the regular army until he has completed the school course and the



Fig. 7. Walter Reed Hospital—Rented quarters for United States army medical school.

Students are given every facility and encouragement to develop professionally. Instruments and appliances are liberally supplied for their use in the performance of their duties. A well-selected professional library is furnished, and standard modern publications on medical and surgical subjects are added from time to time. The subjects taught in the school are at present as follows:

Military surgery; medical department administration; military medicine and tropical medicine; military hygiene; bacteriology, pathology, and clinical diagnosis; ophthalmology; sanitary chemistry; sanitary tactics; operative surgery; radiology.

In addition to the foregoing the following instruction is given:

Equitation, on one afternoon a week, at Fort Meyer, Virginia, by an officer of the cavalry service; a series of lectures on psychology at the Government hospital for the insane by the superintendent of the hospital; a series of lectures on military law by an officer of the Judge Advocate General's Department, United States army; one or more lectures by each of four distinguished members of the medical profession, on the inactive list of the medical reserve corps, on topics chosen by the lecturer.

A very accurate idea of the scope of the work done at the army medical school may be obtained

from the annual report rendered by Colonel Charles Richard, United States army, commandant of the school, to the surgeon-general of the army for the school year ending May 31, 1893.

The following is the faculty: commandant, Colonel Charles Richard; adjutant, Major Reuben B. Miller; military surgery, Colonel Charles Richard; medical department administration, Lieutenant-Colonel James D. Glennan; military medicine and tropical medicine, Lieutenant-Colonel C. C. McCullough, Jr.; ophthalmology, Major Theodore C. Lyster, Capt. Edward M. Talbott; military hygiene, Major William J. L. Lyster; bacteriology, pathology, and laboratory diagnosis, Major Eugene R. Whitmore, Captain Edward B. Vedder, Captain Mathew A. Reasoner; sanitary chemistry, Major Reuben B. Miller; sanitary tactics, Captain Perry L. Jones; operative surgery and roentgenology, Captain Arthur C. Christie; psychiatry, Captain Thomas D. Woodson; all of the Medical Corps, United States army.

THE PLACE OF THE HOSPITAL IN PREVENTIVE MEDICINE.

To Keep People Well More Important Than to Cure Those Who Are Ill—Early Attention to Beginning of Disease the Future Vital Function of Hospitals.

BY EUGENE L. FISK, M. D.,

DIRECTOR OF HYGIENE, LIFE EXTENSION INSTITUTE, NEW YORK.

IT was recently my privilege to visit and inspect a magnificent Canadian hospital that had just been completed. Subsequently, in an interview with one of the attending surgeons, I expressed great admiration for the hospital, but remarked that I regretted that it was not about half the size. This excited the surprise of the surgeon, who wished that it might have been double the size, until I explained that I was sorry that there were so many sick people who required hospital treatment, and that I wished that the need for the hospital might have been half as great.

When we reflect more deeply on this question, however, we may see an even greater need for hospitals as the morbidity in the population decreases. A hospital, like a physician, may become an important factor in the prevention of serious maladies by early and thorough hospital treatment.

Many chronic diseases can be controlled and checked in their early stages. By early hospital operation many chronic surgical conditions, now woefully neglected, will be remedied and essentially preventive work will be done.

The mortality rate from cancer in the United States registration area has increased 57 percent since 1890. No one with any knowledge of the

facts can doubt for one moment that a very large proportion of this mortality rate is due to neglect of a precancerous or early cancerous condition.

How many cases of "chronic indigestion," really due to gall bladder trouble, duodenal ulcer, or chronic appendicitis, would be benefited by early hospital treatment?

It seems justifiable, therefore, to look forward to the time when our hospitals will not be so much the mournful repositories of hopelessly broken-down wrecks, as the repair shops where human machines are taken for strengthening and repair before the hopeless breakdown occurs.

This is the insistent note in modern medicine, and it may be said without exaggeration that the profession is remoulding itself along these lines. The hospital of the future, like the physician of the future, will find an ample sphere in keeping people well, in administering thoroughgoing scientific treatment or furnishing systematic guidance and supervision for impaired or potentially impaired humanity.

Although preventive medicine is still in the early stages of growth, there is even now a wealth of knowledge on these subjects and an abundant equipment for doing effective work in prevention, if people who are below par and head-

ing for disease or impairment can be brought under medical supervision.

Some systematic method of reaching these people is required. There could be no better method than periodic health examination at least once a year for the purpose of detecting any departure from the normal and giving the individual an opportunity to have the necessary corrective measures applied.

Dr. Victor C. Vaughan well expressed this principle in his address before the American Medical Association in June:

"If preventive medicine is to bestow on man its richest service, the time must come when every citizen will submit himself to a thorough medical examination, once a year or oftener."

Dr. S. S. Goldwater, health commissioner for New York City, has even suggested that this be made a governmental function, and he has himself applied the principle in his own department by having his employees examined periodically. Employers of labor and life insurance companies are awakening to the possibility of such a system. The most widespread employment of this system is now in the life insurance field.

In January last a group of scientists, publicists and business men became impressed with the possibilities of such a system, and joined to form the Life Extension Institute, whose purpose should be a reduction of the general death rate and an improvement in the general physical fitness of the population, through periodic physical health examinations and educational propaganda for the purpose of spreading a knowledge of personal hygiene. Ex-President William H. Taft became chairman of the Board of Directors, General Wm. C. Gorgas, consultant in sanitation, and Prof. Irving Fisher chairman, of a Hygiene Reference Board of about one hundred eminent scientists.

The Life Extension Institute has contracts with a number of leading life insurance companies for the periodic reexamination of their policy holders in order that disease conditions may be discovered in time to check or cure them. The same service is supplied to employers of labor, banks, trust companies, industrial and manufacturing concerns, and also to individuals in the general public. The privilege is now regularly extended to more than 150,000 people.

The work thus far done shows the emphatic need for such a service. About 95 percent of those examined required at least some suggestion regarding the care of their health. If they were not physically impaired, there was some error in living habits that required correction lest in time it should undermine health. About 65 percent of

these people were sufficiently impaired to actually need medical attention, and were referred to their physicians for treatment.

The economic value to the medical profession of such work must be at once apparent. Vast numbers of people are drifting around aimlessly, falling victims to quacks, patent medicine vendors and faith cures. Many of these people have been rescued from their own neglect or mismanagement, and handed over to scientific medicine for treatment. Many who have not required actual medical treatment have received instruction and suggestions in right living.

One important fact brought out by these examinations is the steady encroachment of the diseases of the cardiovascular system. In a group of some thousands of employees examined in New York City at an average age of 30, 13 percent were found suffering from some thickening of the arteries, showing that in many instances the preparation for cardiovascular failure in middle life begins in youth. These diseases are heavily on the increase in the population, and it is of extreme importance to detect their early signs and so control the manner of life that these tendencies may be checked.

These examinations disclosed many surgical conditions that required attention, such as chronic appendicitis, gall stones, and especially neglected hernia.

The Institute has examining physicians listed throughout the United States and Canada, wherever competent physicians are available.

There has been a most gratifying spirit of cooperation manifested by these examiners, who appreciate that the Institute is performing for the public, and for the profession as well, a service which it has heretofore been nobody's business to perform.

Typhoid Decreasing in This Country.

Surgeon General Rupert Blue, of the public health service, in his annual report, says public health officers who examined persons who come in contact with migratory consumptives found little reason to believe that such contact has proved injurious. It is again suggested that investigation by American officials does not bear out the claims made by Dr. F. F. Friedmann for a specific for tuberculosis. Investigation of the Von Ruck treatment for the same disease, the report says, is incomplete.

Speaking of typhoid, Dr. Blue says that although its prevalence in this country is being gradually reduced and the rate is not more than half what it was thirty years ago, it still is higher than in some other advanced countries. The urgent need is rural sanitation.

Study of the use of drugs in this country, where anti-narcotic legislation has made statistics available, Dr. Blue says, leads to the belief that the users of morphine and opium in this country probably do not number more than one hundred and forty thousand.

A PROPOSED METHOD OF HOSPITAL STANDARDIZATION.**Functions of the Modern Institution—Efficiency Defined—Scientific Management Needed—Ideals Defined—Standards and Schedules—Agencies at Work on the Problem—A Suggested Plan of Procedure.**

By RICHARD WATERMAN,

SECRETARY COMMITTEE ON HOSPITAL EFFICIENCY OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY.

THE hospital of today occupies a very much broader field of work than did the hospital of a century ago. Its functions include not only the care of the sick, but also the prevention of disease, the scientific study of causes and the treatment of disease, and the systematic education of doctors, nurses, and the public. In order to perform these functions properly, the hospital has been obliged to erect an elaborate plant; to provide a great diversity of expensive equipment; and to supplement the efforts of its unpaid scientific staff by employing a special staff of highly paid experts in both the scientific and the business departments.

MAGNITUDE OF THE PROBLEM.

A brief summary of the financial and operative statistics of the hospitals in the United States may serve to emphasize these statements. THE MODERN HOSPITAL for September, 1913, says, "There are in the United States 6,665 institutions of record for the care of the sick, with a total capacity of more than 600,000 beds. By a modest estimate these huge figures represent a money investment in land, buildings and equipment of not less than \$1,500,000,000, and an annual outlay for maintenance approaching \$250,000,000.

"On the human side there are more than 100,000 trustees of hospitals and more than 65,000 physicians on hospital medical staffs. About 10,000,000 men and women contribute annually to the hospital funds and approximately 9,000,000 men, women and children are patients in the hospitals in the course of each year."

WHAT IS HOSPITAL EFFICIENCY?

The fundamental idea in efficiency is the elimination of waste. A hospital is efficient if it thoroughly performs its functions—the care of the sick, the prevention of disease, the research work and the education of doctors, nurses and the public—with the least possible waste of labor, materials and money. There is an enormous amount of waste involved in the present methods of operating hospitals. The waste of money probably amounts to more than 20 percent of the \$250,000,000 paid each year for current expenses; and there is in addition a waste of human labor and opportunity that is incalculable.

We waste the time of our trustees when we fail

to adopt a system of financial records and reports that will enable the superintendent of the hospital to present to the board at frequent intervals an intelligent statement of the work done and the unit cost of the work.

We waste the time of members of the medical staff when we fail to provide the facilities that will enable them to do their work properly. The most eminent specialists give their services to the hospital without charge; and when they are unable to do their work for lack of suitable equipment it is just as truly a waste of time and of opportunity as it would be if they were receiving a large professional fee.

We waste the time of our nurses when we require them to learn a dozen different ways of doing their work in the operating room or in the wards, because we have not discovered the one best way of doing the work and adopted it as the standard method of procedure.

We waste a large amount of money when we provide for the construction and equipment of hospitals where they are not needed; and at the same time we throw away the opportunity to construct and equip new hospitals where they are needed.

We waste a large proportion of the first cost of construction and of the annual cost of maintenance of our hospitals when we fail to make ourselves familiar with the experience gained by others. For example, a large American city has recently completed the erection of a municipal hospital at a cost of nearly \$6,000 a bed. The best experts agree that this is twice as much as it should cost; and also that the arrangement of the buildings will make the annual cost of maintenance from 50 to 60 percent more than is necessary.

We waste a great deal of money when we buy useless equipment without investigation, merely because it has been recommended by some prominent member of the staff; and when we duplicate expensive equipment many times over in neighboring hospitals and then allow it to lie idle the greater part of the time. No corporation that is organized for profit could afford to do this, nor can a hospital afford to do it.

We waste a considerable part of the money spent in the purchase of medical, surgical and household supplies. In every hospital about 60

percent of the cost of maintenance goes for supplies, and about 60 percent of these supplies could be bought to good advantage through a properly organized central purchasing bureau.

We waste at least half of the money that we spend to maintain beds for convalescent patients in a hospital for acute cases. It is well known that the per capita cost in a convalescent home is less than half the per capita cost in an acute hospital.

We waste a great deal of money by failing to devise and adopt a good system of serving food to the patients. In one large hospital that has a very high reputation the food is handled seven times and reheated twice between the kitchen and the patient's bedside; and in one 24-bed ward the number of trays on which food is left untouched has been known to be as high as 33 percent.

We waste a great deal of time and money in our dispensaries when we admit a large number of patients who take a great deal of the time of the dispensary physicians for preliminary examinations at which a careful diagnosis of each case is made, and later when we fail to take the necessary steps to insure the return of these patients after their first visit. For example, one large dispensary shows in its report for 1914 that in a certain clinic 45 percent of the patients paid only one visit, and adds that "not all the work done for these patients was wasted, but most of it was."

We waste a large amount of money and human effort by failing to coordinate the various departments of the hospital, and by failing to establish recognized lines of authority so that we can direct the work of every person connected with the hospital along such lines that it will be of the greatest service.

HOSPITAL MANAGEMENT CAN BE MADE SCIENTIFIC.

An enterprise that spends \$250,000,000 a year for current expenses is a large business undertaking and should be managed in accordance with sound business principles, and yet it is true that very few trustees are prepared to apply the same principles in the management of a hospital that every business man applies, as a matter of course, in the management of his own business.

In these days of scientific management every progressive business man is studying the principles of efficiency. He knows that in his own business it pays to have a planning department that will help him to make sure that his staff is so organized, his buildings and equipment so arranged, and his financial and operative statistics so prepared that the work done will be as economical and as efficient as possible.

The business man should also realize that he

can insure efficiency in the management of the hospital of which he is a trustee by precisely similar methods. A few hospital boards and hospital superintendents are already convinced on this point, but the great majority are still in doubt. This is largely due to the fact that there is at present no authoritative statement of the fundamental principles of hospital efficiency or of the general method of applying those principles.

In the absence of such a statement, it may be of service to present here a brief outline of the principles of efficiency which are applicable in every field of human activity—business, professional, governmental, educational, and philanthropic—and to show by a few concrete illustrations how these principles can be applied in the scientific departments of the hospital as well as in the business departments.

PRINCIPLES OF EFFICIENCY.

Mr. Harrington Emerson, one of the foremost efficiency engineers in the United States, has formulated the following list of the fundamental principles of efficiency: (1) Clearly defined ideals; (2) common sense; (3) competent counsel; (4) discipline; (5) the fair deal; (6) reliable, immediate, and adequate records; (7) dispatching; (8) standards and schedules; (9) standardized conditions; (10) standardized operations; (11) written standard practice instruction; and (12) efficiency reward. Each of these principles really is fundamental and should be given careful consideration by trustees who desire to make the management of their hospital efficient.

CLEARLY DEFINED IDEALS.

The ideals for which the hospital is working should be clearly defined. A few years ago the hospital confined its attention to the treatment and care of people who were already sick. Today, in addition to caring for the sick, it devotes a great deal of attention to keeping people well. A few years ago the average hospital made no effort to follow discharged patients into their homes in order to measure the results of hospital treatment. Today, in many of our best hospitals, the "follow-on" system is an important part of the work. A few years ago, no systematic effort was made to add to the medical diagnosis and medical treatment a social diagnosis and systematic treatment by a trained social worker. Today there are hospitals and dispensaries where the social worker is as much a part of the clinic as is the doctor or the nurse.

COMMON SENSE.

The hospital should use a reasonable amount of common sense. For example, it should avoid the

unnecessary purchase of costly apparatus. At the present time it frequently happens that the expensive equipment needed to facilitate diagnosis and treatment is duplicated many times over by neighboring institutions. This results in extravagant expenditures and a great deal of preventable waste.

COMPETENT COUNSEL.

The hospital should seek expert advice when necessary. It is not possible for each of the 6,700 hospitals in this country to include as permanent members of its staff all of the specialists whose advice will be needed at one time or another. Each must, therefore, be prepared to employ competent counsel when needed: a hospital consultant to help in planning new buildings; an expert accountant to devise and install a system of financial records and reports; an efficiency engineer to discover and eliminate every form of preventable waste, and so on.

DISCIPLINE.

The hospital should enforce discipline in all parts of its organization. Rules governing the treatment and care of the patients and the general conduct of the hospital should be clearly defined by the board of managers and placed in the hands of each member of the administrative, the medical, and the nursing staff; and these rules should be enforced.

THE FAIR DEAL.

The hospital should give a fair deal to its patients and to the public as well as to its contributors, its managers and its staff of doctors and nurses. The fair deal requires that the interests of the patient treated in the hospital or in the dispensary shall be protected by making sure that in each case the physician or the surgeon in charge is really competent to do the professional work involved. The fair deal requires that the interests of the contributor who is asked to support the hospital shall be protected by giving him some assurance that the money he contributes will be used to good advantage. The fair deal requires that the interests of the doctor who contributes his services shall be protected by giving him, as far as possible, the facilities he needs in order to perform successfully his part of the hospital work.

RECORDS.

The hospital should keep reliable, immediate, adequate, and permanent records. The system of medical records should be such that it will aid the staff, not only in their treatment of the patients, but also in preserving the history of each case in such a form that it will be available for use in the future as a record of experience and as an aid

to teaching. The system of financial records and statistics should be such that it will enable the hospital executive to lay before the board of managers at frequent intervals a clear picture of the work done and the unit cost of this work, and will afford a common basis for the comparison of each hospital with every similar institution throughout the country.

DISPATCHING.

The dispatching of patients in a hospital should be just as prompt and systematic as the dispatching of trains on a railroad. A patient who applies for admission to the hospital should be examined promptly by the admitting officer, assigned at once to the proper room or ward, and seen within a reasonable period by the visiting physician or surgeon on service; and the instructions given by the visiting physician in regard to treatment and care should be carried out promptly and thoroughly by the other members of the medical and nursing staff.

STANDARDS AND SCHEDULES.

The hospital should establish definite standards by which to measure the economy and the efficiency of its work. One institution may have a per capita cost of \$3.00 per day and another may boast of a per capita cost of \$1.10 per day. It is necessary to establish some definite standard by which to measure the per capita cost before we can determine whether it is a credit or a disgrace to have a per capita cost of \$1.10. One dispensary physician may treat twice as many patients in an afternoon as his colleague who is working under similar conditions. It will be necessary to know that he treats them with equal success before we can say that he is twice as efficient as his colleague.

STANDARDIZED CONDITIONS.

The hospital should standardize the conditions under which its work is done—i. e., it should make a scientific study of the results of experience in many hospitals in order to determine the conditions under which each class of patients can be cared for with the highest degree of success; and should then provide in each department the facilities indicated by the results of this study. For example, the principal service rooms should usually be located as close to the wards as possible. In one hospital these rooms are so close to the wards that the number of steps the nurses take in order to do their daily work is reduced to a minimum. In another hospital the nurses are required to go to the other end of a long corridor every time they need to use the diet kitchen, the sink room, or the duty room.

STANDARDIZED PLAN OF OPERATION.

The hospital should standardize its plan of operation. A few years ago, in one of the leading hospitals of this country, which has been used as a model by many other institutions, there were thirty-three members of the staff who had authority to admit patients. In the same institution today there are only two members of the staff who have this authority—an admitting officer and his assistant. In some hospitals the medical records for each service and for each dispensary clinic are kept in a different place and are not cross-indexed. In a few of the more modern institutions the hospital, dispensary and social service records are all consolidated, and it is possible to find in one place a continuous medical history of each patient from the time that he was first admitted to any department of the hospital.

WRITTEN STANDARD PRACTICE INSTRUCTIONS.

The hospital should define clearly the rules and regulations governing the ordinary procedure for every department so that even when there are frequent changes in the personnel of the medical staff, the nursing staff, or the administrative staff the policy and the practice of the hospital will be continuous.

EFFICIENCY REWARD.

The hospital should give a suitable reward for efficiency in every department of its work. In the business departments, for example, the amount of compensation paid to employees should be determined by applying the same standards that would be applied in any well managed commercial enterprise. In the scientific departments the professional recognition given to a member of the staff should be, as far as possible, directly proportional to his professional success. In many hospitals this principle is not recognized, and promotion is made to depend not on efficiency, but on seniority of service.

PLANS FOR INCREASING THE EFFICIENCY OF HOSPITALS.

Many different plans have been proposed with a view to increasing the efficiency of hospitals in the United States—either individually or collectively. The American Medical Association has established a hospital section and has appointed a Committee on the Standardization of Hospitals. The Clinical Congress of Surgeons of America has appointed a similar committee, which submitted a report in November, 1913, making certain definite recommendations. The American Hospital Association has urged for years that a comprehensive study be made and that plans be developed for the classification and standardization

of all of the hospitals in the United States, and at each of its annual meetings has appointed standing and special committees to report on various phases of hospital efficiency. All three of these organizations have urged the Carnegie Foundation to prepare a report on the classification and standardization of hospitals—a report that would perform as great a service for the hospitals of this country as the report on "Medical Education in the United States" has already performed for the medical schools.

SATISFACTORY PLAN NOT YET FORMULATED.

The committees of these various organizations are now trying to formulate a satisfactory plan for accomplishing the purpose for which they were appointed. They realize that they must propose a plan that will not be objectionable to the hospitals; and one that it would be possible for some properly constituted agency to carry out, provided it is willing to undertake the work and to assume the necessary expense.

It is not possible to make an individual study of each case of the 6,700 hospitals in the United States and present the results in comparative tables. It is not possible to grade the hospitals, saying "this hospital is in class A," and "that hospital is in class C"; nor is it desirable to do so. It is not possible to set up an arbitrary standard which every hospital must attain if it is to be regarded as a reputable institution. And yet these are some of the suggestions that have been urged as essential parts of any proposal looking towards the classification and standardization of hospitals.

SUGGESTED PLANS.

It is possible to define the terms "classification" and "standardization" in such a way that under the definition both the classification and the standardization of hospitals in the United States can be accomplished, if sufficient resources are provided for the purpose.

For example, the American Hospital Association or the Carnegie Foundation or some other properly constituted authority might undertake—

(a) To prepare a schedule for the classification of hospitals providing for a number of different groups, each of which would include those institutions which are sufficiently similar to be comparable.

(b) To make a study of all the teaching hospitals in the country and, in addition, to study a few typical institutions in each group included in the proposed classification, but to make no attempt to grade each hospital or to measure its efficiency as compared with other institutions.

(c) To define standards by which to measure efficiency in each of the proposed groups so as to

make it possible for the managers of any hospital to apply the standards themselves and to measure the efficiency of their own institution.

(d) To include in the report a study of the work done by hospitals for the education of doctors, nurses, and the public.

VALUE OF PROPOSED REPORT.

A report developed along the lines suggested would be of great service to the hospitals, the medical schools, the nursing profession, and the public. It would be of service to the hospitals because it would enable each institution to measure its own efficiency and would present constructive plans for increasing the efficiency of those institutions which do not measure up to the standard.

It would be of service to the medical schools since it would help them to develop more effectively that side of their work which must be done in a teaching hospital.

It would be of service to the nursing profession since it would define standards for the training schools for nurses and show them what is generally recognized as the proper course of study, the necessary equipment, and the desirable facilities for a training school for nurses. This part of the report would have a very wide application, since a majority of the hospitals in the country have training schools for nurses. Many of them are sending out each year large classes of young women who are allowed to become graduate nurses and to enjoy all of the privileges of the profession without having received an adequate training for the work.

It would be of service to the public since it would make clear the necessity for including in the organization of every hospital some provision for protecting the interests of the patients. It is an acknowledged fact that some of the best medical work and some of the worst is done in hospitals, and it is very desirable that some steps should be taken to enable the public to determine which hospitals are entitled to their confidence.

CLASSIFICATION OF HOSPITALS.

The proposed schedule for the classification of hospitals would provide for a number of different groups. It is obviously unfair to compare a large general hospital in New York with a thirty-bed hospital in some small interior town, or a contagious disease hospital with a hospital for incurables, or an insane hospital with a children's hospital; but it is quite possible to group these institutions in such a way that those which are grouped together can be compared.

STUDY OF HOSPITALS.

The proposed study of hospitals should result in a report that will present the essential facts

(a) In regard to the number of hospitals in the United States, the number of patients treated, the number of managers, doctors and nurses actively engaged in the work, the amount of money invested, the amount of money expended each year for maintenance, and other data that can readily be obtained from recognized sources of information.

(b) In regard to each of the teaching hospitals in the United States showing what it does for the education of medical students, for the further education of members of the medical profession, and for the movement to add to the available knowledge of the causes, the prevention, the diagnosis, and the treatment of disease.

(c) In regard to the educational work done by hospitals where nurses are taught in the training school for nurses, in various departments of the hospital, and in various dispensary clinics; and where the public is taught by hospital and dispensary physicians, by lecturers and teachers in the out-patient departments, by social service workers and by the publication of suitable material in the form of annual reports, special publications, and articles in the periodical and daily press.

(d) In regard to a few typical hospitals in each group included in the proposed classification.

STANDARDIZATION OF HOSPITALS.

The suggested plan makes provision for defining standards by which to measure the efficiency of a hospital in any one of the groups in the proposed classification. These standards, when defined, will help the trustees of any hospital in the country to answer the following questions in regard to their own institution:

- (a) Is the organization of our hospital efficient?
- (b) Is the management scientific?
- (c) Are the buildings so planned that the hospital can avoid preventable waste?
- (d) Is the equipment such that it is possible for the hospital to do the best work?
- (e) Does the hospital spend a sufficient amount of money each year to insure good work?
- (f) Are the medical and financial records kept in a form that will enable the trustees to measure the amount and quality of the work done and the unit cost of the work?
- (g) Do the social service and "follow-on" systems enable the medical staff to ascertain the end results of their work?
- (h) Are the physicians and surgeons getting as good results as they should in the treatment of their patients?
- (i) Does the hospital cooperate actively with

the public authorities and with various private institutions and agencies to protect the health of the community?

CENTRAL HOSPITAL BUREAU.

The proposed study of hospitals should result in establishing, under the auspices of the American Hospital Association, a Central Hospital Bureau, that

(a) Will place within the reach of every hospital in the United States the latest information in regard to hospital organization, management, construction and equipment.

(b) Will make the necessary tests and establish standards of quality and price for the medical, surgical and household supplies ordinarily used in our hospitals, and will thus help every hospital—large or small—to save the money now wasted in purchasing supplies without a full knowledge of current market conditions. This would result in a very substantial saving, since the

present annual cost of the supplies used in American hospitals is about \$150,000,000.

(c) Will help to develop a community program for hospital work with a view to preventing the unnecessary duplication of expensive equipment and the overlapping of work that have proved so wasteful under the present system.

(d) Acting in an advisory capacity, will aid individual hospitals in their efforts to increase their own efficiency and to make the best use of the funds entrusted to their care.

The proposed Central Hospital Bureau, with its skilled organization, its complete hospital information, its modern systems of investigation and record, its staff of hospital consultants, expert accountants and auditors—all at the service of each hospital—will make it possible for the smallest institution to be conducted with the same precision and skill as the largest, and for all of them to effect a great saving in their expenditure of time, money and human effort.

THE HOSPITAL X-RAY LABORATORY—ITS SCOPE AND LIMITATIONS.¹

The Working Force and Duties of Each Person—Reports on Cases—Location of Laboratory—Plans of Space for Different Size Hospitals.

By I. SETH HIRSCH, M. D.,

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PAPER II.

THIS routine carries out the objects and purposes of an x-ray laboratory, and it is only by following this or a similar routine that any method or system can be maintained. For in a well-organized laboratory each worker, from the medical director to the orderly, has particular tasks and duties, and there is a particular time in which this or that task is to be performed.

It will be at once apparent that since there are numerous and varied tasks and duties to be performed, a certain amount of division of labor becomes necessary as the laboratory attains any considerable size.

WORKING FORCE.

In a general way, it may be stated that the average hospital, doing roentgenographic work according to modern standards, will examine during the year a number of patients equal to five times the number of beds. Thus, a hospital of one hundred and twenty beds will normally examine about six hundred patients a year, of which about twelve hundred plates will be made. A hospital of three

hundred beds will examine fifteen hundred patients a year, of which about three thousand plates will be made, etc., while about sixty-five hundred patients should normally be examined with twelve thousand plates in a hospital of thirteen hundred beds. A ratio of about nine plates to every five patients obtains in most hospitals. Generally speaking, therefore, laboratories may be divided into three classes—small, medium, and large.

In a small laboratory with a normal service of six hundred patients or less, it is possible for the entire work to be done by one individual; but under these circumstances a daily attendance in the laboratory for at least five hours is necessary.

In larger laboratories this becomes almost impossible and an increase in the working staff becomes imperative, the increase being in proportion to the size and variety of service.

The director of the laboratory should in all cases be a medical man, who has devoted himself to roentgenology as a specialty. It is difficult to mention a specialty which requires so considerable and varied an experience and knowledge, so thorough a fundamental education, and so com-

¹This is the second of three papers on The Hospital X-ray Laboratory, by Dr. Hirsch. Third installment next month.

prehensive a view of medicine and surgery as does this art of clinical diagnosis.

The working staff may be increased by the addition of the following:

1. Photographic assistant to assume charge of all the dark-room activities.
2. The nurse to assist in the preparation of the patient for examination, and to act as executive secretary, assuming charge of the records, filing, indexing, etc.
3. Technician to make the plate examination and keep the apparatus in order.
4. A stenographer for either part of or the entire day, for the purpose of receiving dictation on the reports of the examination and doing clerical work.

For small laboratories a nurse may be trained to perform the duties of the photographer, technician, and executive secretary, and in the majority of smaller laboratories in Europe this is done; but in the large laboratories a further division of labor becomes necessary, and this

quently valueless and uninformative, while the material itself becomes useless and a burden.

DIRECTOR.

The detailed duties of the director are:

1. General control.
2. Special work.
 - (a) Fluoroscopy; dictation of results to stenographer.
 - (b) Radiography. Though it is not essential that he make all the radiographic examinations

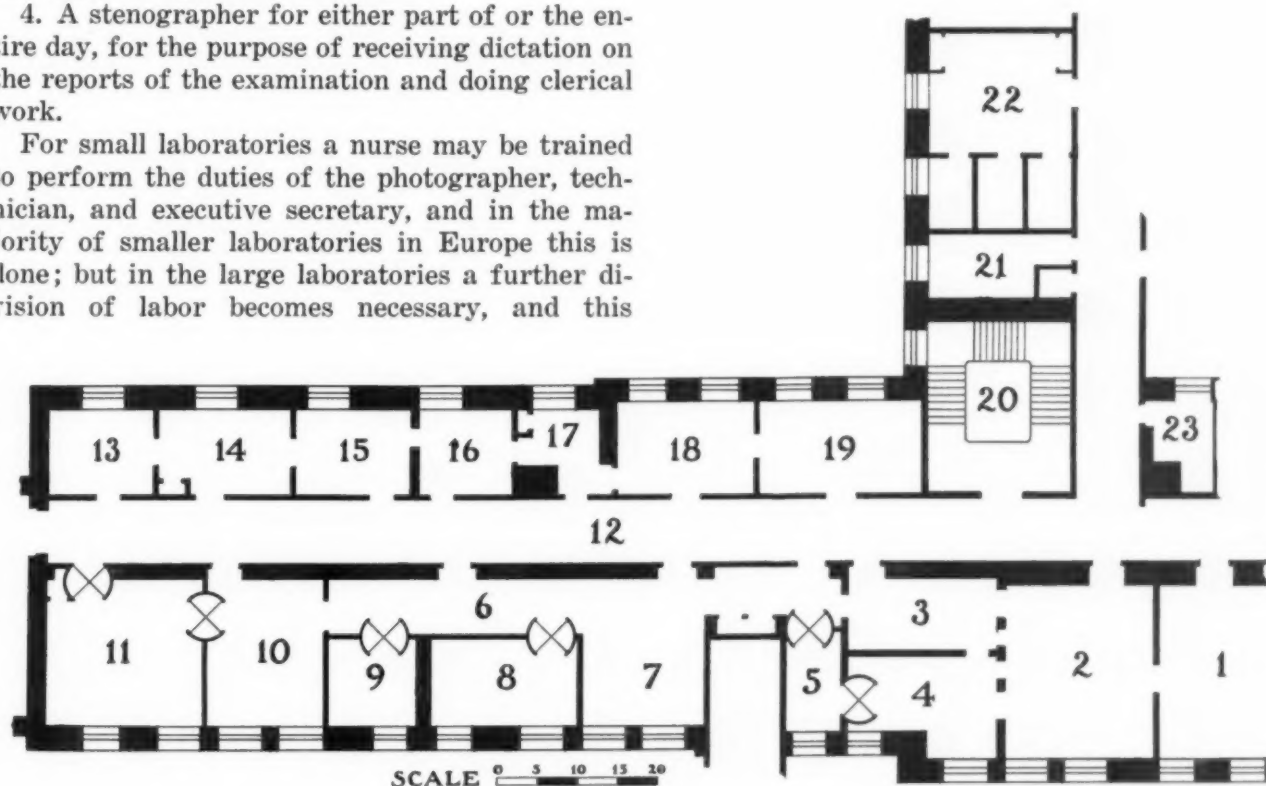


Fig. 1. Plan of new x-ray department, Bellevue Hospital, New York City. McKim, Mead & White, Architects.

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|--|--------------------------------------|----------------------------------|
| 1. Waiting room (light green). | 9. Print room (orange). | 17. Attendant's room (buff). |
| 2. Examining room (light green). | 10. Examination room (glossy black). | 18. Office (buff). |
| 3. Examining room (light green). | 11. Fluoroscopy room (blue-green). | 19. Library (buff). |
| 4. Machine room and office (white). | 12. Radiographic dept. | 20. Elevator. |
| 5. Plate loading room (orange). | 13. Fracture room (blue-green). | 21. Lavatory (white). |
| 6. Corridor and plate storage (black). | 14. Ward (light green). | 22. X-ray therapy (light green). |
| 7. Medical demonstration room. | 15. Kidney room (light green). | 23. Lavatory. |
| 8. Dark room (orange). | 16. Operating room (buff) | |

should be in the direction, first, of obtaining a dark-room assistant, and secondly, in the enlistment of the services of a stenographer.

The result of the first addition is to limit the activities of the director to the actual making of examinations, both fluoroscopic and plate, thus permitting him to give more time to work that is more properly within his sphere. The result of the second addition is to increase the value of the examinations by making for full, complete, and detailed reports, for accurate filing and cross-indexing, etc. Without this assistance, in busy laboratories, the reports degenerate into the making of mere diagnostic labels, which are fre-

(plates) himself, it is important that he direct the activities of the technician in each particular case. Thus, ere the examination is made, he should place brief instructions on the requisition card, because no matter how expert the technician, the director is better fitted by his medical knowledge to direct the examination. For instance, the card may, in a case of acromegaly, ask for the examination only of the head, but the director will note that the hands and feet should also be examined, for these may add additional valuable information.

- (c) Reading and reporting plates.

There has been considerable difference of

opinion regarding the nature of the reports submitted by the roentgenologist. It has been claimed by some that a report of findings in reference to shadows, etc., is sufficient, the interpretation thereof to be left to the clinician. It is this attempt to make the roentgen laboratory a mere

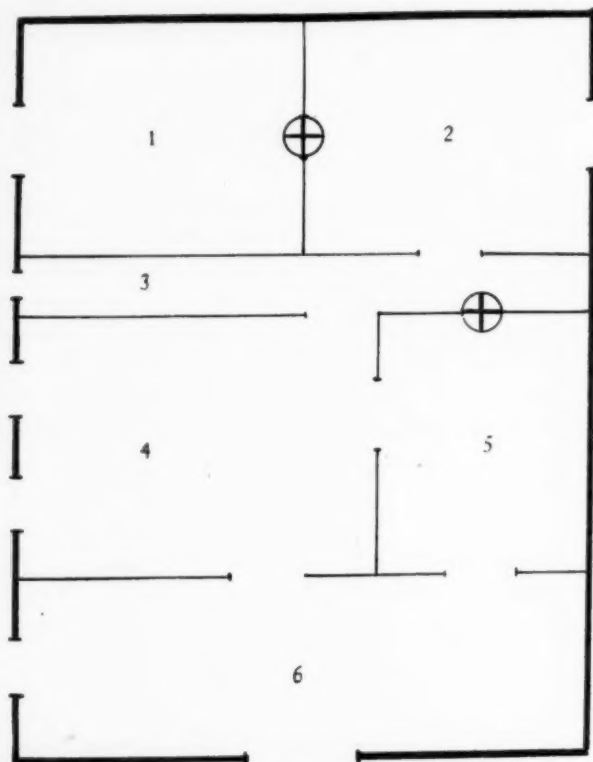


Fig. 2. Plan of medium sized x-ray laboratory.

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|----------------------------|-----------------------|
| 1. Photographic room. | 4. Examining room. |
| 2. Demonstrating room. | 5. Fluoroscopic room. |
| 3. Machine-operating room. | 6. Waiting room. |
- Solid revolving doors.

picture shop which leads nowhere, and retards the advancement of the art. The sole object of the existence of the laboratory is to produce results. The plate examination is but the means to an end—its interpretation. It is just as illogical as to request the pathologist that he confine his activities to the cutting, staining, and mounting of the specimen, and leave the diagnosis to the clinician.

The report should consist of:

1. Description of the plate shadows.
2. Interpretation in the light of recognized accepted findings.

The roentgenologist should know not only the limitations of his art, but his own limitations, and should curb his zeal and enthusiasm and remember that scientific caution is more impressive than brilliant though unfounded generalization.

Would that it were possible to institute the methods of the German clinics in our x-ray departments! The surgeon and staff at a certain hour daily visit the department, bringing with them the clinical history of the cases. These are

read and discussed in the light of x-ray findings, and the necessary additional examinations are made and conclusions reached.

Blessed, indeed, is the roentgenologist who has this support and interest of his medical staff. The inspiration they are capable of giving is incalculable and the appreciation of his efforts is a constant stimulus, which will spur him on to greater effort and activity. Appreciating that roentgenology is not a finished art, and that it is only by clinical and pathological correction and elucidation that definiteness and accuracy can be reached and the true value of the examination established, he will welcome constructive criticism and helpful correction. Only by the combined effort of the medical staff and the roentgen-ray laboratory will anything permanent be accomplished.

Difficult is the task, however, of him who must fight for an appreciation of the diagnostic value of the method in the face of scepticism and ignorance. But his eventual reward will then be all the greater. Indeed, I have known an alert, progressive roentgenologist to rouse a somnolent medical staff into activity by his discreet questioning of clinical diagnosis and by careful analysis of the material.

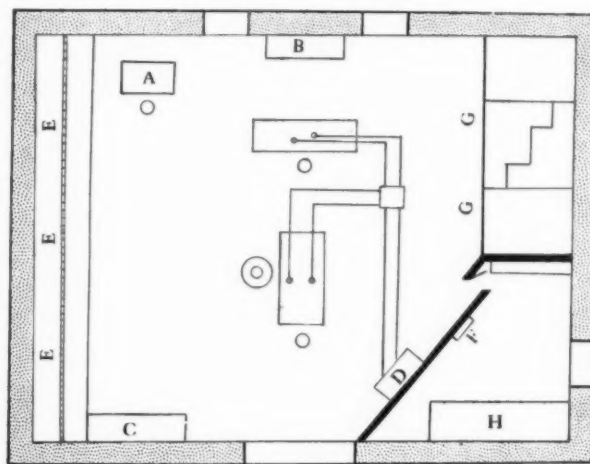


Fig. 3. Plan of a simple arrangement of x-ray laboratory in one room.

- | | |
|------------------|--|
| A Desk. | E E E Illuminating boxes and files. |
| B Tube closet. | F Switch board. |
| C Supply closet. | G G Developing, fixing, and washing tanks. |
| D Transformer. | H Plate closet and shelves for loading. |

Studied, confidential, and cordial should be his relations to the superintendent. No progress will be made unless he is taken into the director's confidence and is kept fully acquainted with the purposes, the routine, the working of the laboratory, and with the progress of the art. The aim should be to make the attitude of the superintendent one of encouragement and support and his feeling one of pride in the equipment and efficiency of the laboratory. Arrogance and stubbornness on the

part of the director will bring nothing but endless annoyance and clogging opposition.

For instance, if it is the desire to obtain for the laboratory the fastest plate on the market (though its price be much higher than the slowest), actual proof that it makes for eventual economy because of saving of tubes, better radiographic results, shorter time spent in the dark room, etc., will accomplish more than insistence and dogmatism.

In regard to the relations of the laboratory director to the hospital organization as a whole, it is important for him to remember that he is only a small part of a vast machine, and that it is well to run silently and without friction.

When a director has so coordinated and arranged his activities as to have gained the support and interest of the medical staff and the superintendent, and has made the laboratory play an important part in the clinical activities of the hospital, he may consider that he has attained efficiency. The director of the laboratory should in all cases receive remuneration of a substantial sort so that he may give his time and unstinted attention to his work. This remuneration may be obtained either directly from the hospital or indirectly from the examination of the private patients of the hospital.

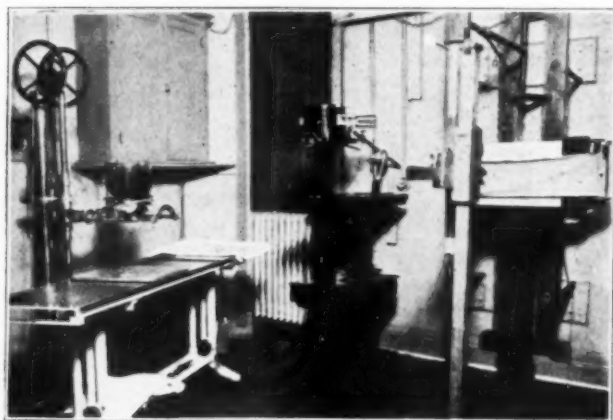


Fig. 4. The examination room, x-ray department, Bellevue Hospital, New York City, showing the three working units. To the left, the table and tube stand for examination of patients in the horizontal position. In the center, the vertical tube stand arrangement to examine the upper extremity of walking patients. To the right, a vertical arrangement for the making of plates of chests and stomachs. The tube stand here may be slid out for a distance of six feet for special plate examination.

ACCOMMODATIONS.

The space devoted to the x-ray department should be ample. In most American laboratories the space is entirely inadequate. The tendency exists to put the x-ray department in the most out-of-the-way, inaccessible, and unsanitary part of the building. In the location of the x-ray department there are two points to be considered:

1. The outdoor patients.
2. The hospital patients.

In the hospitals abroad there are frequently two distinct departments, one for the outdoor and one for the hospital patients. In fact, the particular medical and surgical services have for themselves each a special department. This, however, does not obtain even in the largest American hospitals,

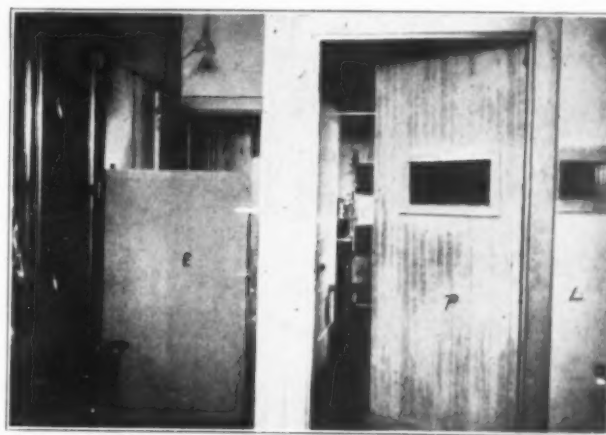


Fig. 5. Showing lead wall (L) and leaded partition (P) between the machine-operating room (A) and the examining room, behind which the operator retires while the exposures are being made. Lead glass windows permit inspection of the examining room, while a lead glass shield on the tube stand is also of assistance in cutting off incidental rays. Dressing room (E) is placed between fluoroscopic room (B) and the examining room, which is in front and is shown in the other photograph.

and perhaps it is better so. Centralization, I believe, on the whole, if accompanied by the necessary organization, makes for greater efficiency, greater economy, and more accurate and uniform results.

It will at once be seen that it would be an error to place the department in such a part of the hospital as to make it necessary for outdoor and dispensary patients to wander through the halls and ride in the elevators to reach the laboratory. Again, it is a hardship to trundle patients on stretchers in wintry gales and driving rain across courtyards to the laboratory. The department should be placed in close proximity to the wards, the center of the hospital's activities, so as to make it easily accessible to both patient and attendant. The ground floor is, therefore, usually the best, and the site should be as close to the elevator as is possible. In such a location the department is made accessible to all from without, is convenient for the administration, for the wards, and for the delivery of supplies.

There are three phases to the roentgen examination:

1. The making of the plate.
2. The developing of the plate.
3. The reading of the plate.

Therefore there are necessary—

1. The examining room.
2. The photographic dark room.
3. The demonstration room.

this end it is the duty of those in authority to provide all the necessary means of protection against the ill effects of the rays, such as lead screens, opaque aprons, and gloves."

It is sufficient to say that the best protection is afforded the operator when he is entirely out of the room containing the x-ray tube. This is accomplished by placing a small room between the demonstration room and the examination room. We may call this the *Machine-operating Room* inasmuch as from here the apparatus is manipulated, the tube regulated and the lights controlled. Within this room is also placed the interrupterless machine, as the noise of the motor tends to alarm sensitive patients and children.

In larger laboratories it frequently becomes necessary to remove the fluoroscopic apparatus to another room in order that these examinations may be made without interfering with the routine radiographic work. Under these circumstances the *Fluoroscopic Room* should adjoin the machine-operating room and examination room. In European laboratories the vast majority of the examinations are fluoroscopic, the plate being but supplementary, for purposes of record, and this form of examination is playing and is destined in the future to play an important part in the x-ray laboratory examinations, and will undoubtedly diminish the cost of maintenance.

Finally, where a large number of examinations

are to be made, a waiting room for patients becomes absolutely necessary, since otherwise considerable time is wasted waiting for patients to arrive or be removed. This room should directly adjoin the examination and fluoroscopic rooms.

Thus an arrangement which covers the rooms desired in a modern laboratory will have a demonstration room, dark room, machine-operating room, examination room, fluoroscopic room and a waiting room, all so disposed as to be readily accessible and easily controlled and supervised.

Generally speaking, there are two important considerations in the construction and planning of the various rooms of an x-ray department.

1. Protection of the working staff from constant exposure to the ray.

2. Ventilation of the rooms, particularly those in which the daylight is not permitted to enter.

Even with sufficient room and protection, the roentgenologist is still liable to considerable physical injury. He should not confine himself to the laboratory for the entire day. An interval of one or two hours should occur between the morning and afternoon work, during which time he should be in the open air. The room in which the exposures are made and those which are, during working hours, kept darkened, should be exposed to the sunlight for a part of each day and thoroughly aired.

[To be continued.]

FEEDING THE HOSPITAL—THE FOOD.¹

Certain Diseases Are the Result of Faulty Use of Food by the System, and Treatment Is Mostly Dietetic—Special Diets Are Necessary, but Must Be Used With Intelligence—Lists of Diets Prepared by the Author.

By LULU GRAVES, DIETITIAN LAKESIDE HOSPITAL, CLEVELAND.

PAPER VI.

IN practically all metabolic diseases the difficulty is due to lack of systemic control of some one of the food constituents—carbohydrates, fats or proteins. As has been stated before, the nourishment of the body depends not upon the food which is eaten, but upon that which is assimilated. Food may be of the right kind, the right quantity, and be well cooked, yet the body may not be able to utilize it.

Obesity, diabetes, gout, rheumatism, uric acid affections, and all other diseases in which diet plays a large part in the treatment, may almost invariably be traced to one of the following causes—improper eating, bad hygiene, or over-fatigue.

If the food is not thoroughly masticated, the particles may be so large that the digestive juices cannot penetrate them and they are not all digested; or the food may be too long in the stomach or intestines and be decomposed; in either case the digestive organs are overtaxed, and following a natural law they will eventually wear out or rebel in some manner. Overeating has the same effect; irregular eating, eating just previous to or immediately following a great mental or physical effort, interferes with digestion. The secretions of the digestive tract are affected by fatigue and such emotions as fear, anger, and grief. No doubt many "attacks" of indigestion have been brought on by dwelling upon trouble or business cares while eating.

Indigestion and constipation are apt to be fore-

¹This is the sixth in a series of papers on "Feeding the Hospital;" last month appeared "Eggs, Poultry, Meat, Fish;" next month, "The People to Be Fed."

runners of these diseases of metabolism. If attended to in time, removing the cause may be all that is necessary for cure or prevention of the disease. Fothergill says that the protection of digestion has saved many lives. Imperfect elimination of waste causes poisonous alkaloids to be formed; malfermentation produces gases which cause the stomach to be distended; this may interfere with muscular activity; or inflammation may be caused by coarse particles of food; headache or other discomforts result, warning the individual of his indiscretion.

Constipation may be due to lack of peristalsis, intestinal obstruction, too highly concentrated or too nutritious food, insufficient food, insufficient fluid, astringent food, irregularity in diet, lack of exercise or incomplete oxidation. This may be overcome by correcting the fault by eating an abundance of coarse foods in order to furnish the bulk necessary to stimulate peristalsis, by drinking plenty of water, especially when the stomach is empty, so that all particles of waste tissue or other matter which would interfere with the flow of the secretions may be washed out. Drinking water before breakfast is of no more value than drinking it at any other time if not taken long enough before food is taken to allow this flushing-out process to be completed. Fruits are very beneficial in constipation, as the acids stimulate the flow of the secretions, and the cellulose furnishes the necessary bulk, particularly if the skins are eaten. After a prolonged existence of any of these conditions, some one of the above mentioned diseases may develop.

Medical men are discarding the use of drugs and depending more and more upon diet in the treatment of these and many other diseases.

Dietetic treatment cannot be given mechanically. A diet list may be made up which includes every food desirable for a given disease and none that is undesirable, but there may not be one case in five where this list could be used without variation. For successful treatment there must be close cooperation between the dietitian and the medical man.

The doctor, knowing the condition of the patient and following his symptoms from day to day, can suggest changes in diet as necessary; but as a rule the medical man has no time to go into the detail of food composition, the effect of heat on food materials, and chemical changes which take place in some foods during cooking, as the well-trained dietitian of today has been able to do. All of these are important factors in the digestibility and assimilability of our food and should be given consideration in prescribing a diet. Then, too, the personal element must be

taken into account. Many times a food that would be given to a young person would not be acceptable to an elderly one; the physical condition, previous environment and habits, personal idiosyncrasies, and probably complication of other diseases than the specific one being treated, may modify the diet to a greater or less extent. Patients who will submit willingly to the care or physical treatment—no matter how painful or disagreeable—which their physician tells them is necessary, will positively refuse to eat food of which they are not fond, or which is prepared in a way they do not like. In so far as is possible a patient should be given the things he enjoys; if the dietitian knows his likes and dislikes she may be able to give them consideration in the majority of instances; but when it is not possible to do so, the doctor can do more than anyone else to reconcile him to the diet. *Very few* kitchens are adequately equipped and provided with enough people to give good service to the entire house and take care of many special diets and special orders. Doctors who are not familiar with the situation have been known to ask for so many extra things that it would be impossible to provide them; many times a satisfactory substitute could well be given with no inconvenience to anyone. If there are twenty-five or thirty patients getting special diets in various parts of the house, representing a half dozen different men's ideas of treatment, with, perhaps, as many more patients having special things ordered for them, and almost an equal number of things brought to the patient by friends and sent to the kitchen for preparation and serving, great inroads are made on the time of the kitchen help; and there must be a way of regulating this.

In the hospitals with which I have been most intimately acquainted, the cooperation between the medical department and the commissary department has been such that we have been able to accomplish much that was of interest with the patients who were being treated dietetically, as well as to obtain most satisfactory results.

In order that we might have some sort of a guide at Lakeside for the nurses in the diet kitchen who prepare the food for the special diets, and for the nurses who do the serving in the wards, I have prepared a set of diets for several of the most common diseases. Dr. Christy, who has charge of the medical service in the wards, and Dr. Ledbetter, who has charge of the surgical service, approved the lists before they were put into service. At my request, Dr. Christy furnished the concise but comprehensive statements which add very greatly to the helpfulness of these lists.

LENHARTZ DIET.

Day.....	1	2	3	4	5	6	7	8	9	10	11	12	13	14
*Eggs.....	2	3	4	5	6	7	8	8	8	8	8	8	8	8
Sugar.....	gm. 20	20	20	30	30	40	40	50	50	50	50	50	50	50
*Milk.....	200cc	300	400	500	600	700	800	900	1000	1000	1000	1000	1000	1000
Raw beef (chopped)...	.....	.....	.....	gm. 35	70	70	70	70	70	70	70	70	70	70
Milk and rice.....	.....	.....	.....	.....	gm. 100	100	200	300	300	300	300	300	300	300
Zwieback or crackers..	.....	.....	.....	.....	.....	.....	.....	1	2	2	3	3	4	5
Raw ham (chopped)...	.....	.....	.....	.....	.....	.....	.....	.....	gm. 50	50	50	50	50	50
Butter.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	40	40	40	40
Calories.....	200	420	637	777	955	1135	1588	1721	2138	2478	2941	2941	2941	2941

*Serve milk and eggs as egg-nog; set glass in bowl of ice; to be sipped by spoonfuls.

For gastric and duodenal ulcers we use the regular Lenhartz diet with no variation, and only the addition of the explanatory note, and the number of calories obtained from the daily portion—diet list No. I.

When the patient is ready for a comparatively full diet we serve him from the list prepared for hyperacidity—diet list No. II. If the trouble should be low acidity, the low protein list is used—No. III.

For cardiac cases we use Dubois's milk diet, No. IV, and the cardiac diet, No. V.

The treatment of typhoid has been somewhat revolutionized in recent years by the use of a high calorie diet. This list was designed to give approximately 3,000 calories daily. If enough calories cannot be given by the intake of the plain food materials, lactose may be added to the milk to increase the number somewhat. Since the feedings must be given frequently, it is quite desirable to have a variety. This list not only does away with the monotony of broths and milk, but permits of the nourishing cream soups, custards, etc., being interchanged with the more refreshing ices, fruit juices, etc., which will induce the patient to eat more than he might otherwise do. Fresh pineapple juice has been found to be very valuable, not only in these cases of high temperature, but in anorexia, anemia, gastritis, and on convalescent diet—diet list VI.

The treatment of diabetes is almost entirely dietetic, but it must necessarily vary with the individual. This disease is increasing in frequency, though it is almost invariably due to overindulgence in some form—overeating, overdrinking, or it may be overwork. As diabetes is a wasting disease, it is important to maintain nutrition and prevent emaciation, as well as to treat for glycosuria. On the other hand, a diabetic patient generally has a craving for food much of the time, and if he is allowed to do so he may overeat, and other evils may be brought on. Bulky foods, such as soups, salads with oil, green vegetables with high percentage of cellulose may relieve this craving and offset the effect of the more concentrated foods, such as meat, eggs, and cheese—diet list

No. VII. This same diet may be used for obesity.

The lists for: Nephritis, VIII; Purin Free, IX; High Iron Content, X; and Benzidine-free, XI, are self-explanatory.

No special diet for tuberculosis is advisable, the point to observe being always to furnish a nourishing diet that will not overtax the digestion. The patient can utilize fat in large quantities, as he is out-of-doors a great deal, even if he is not exercising very much. Milk and eggs are essential, of course, but the tendency to overdo them is rather strong. This is apt to give the patient a feeling of revulsion toward them after having consumed large quantities of them for any length of time. One quart daily is a liberal allowance of milk, and part of it may be served in cream soups, custards or other forms, as well as a beverage. Three eggs daily are plenty and as many as the majority of patients will take.

In addition to these diet lists, some of which are used in the surgical wards as well as in the medical, we have the surgical test breakfast, which is in general use—tea and bread.

The liquid diet, soft with care, and convalescent, are in use throughout the house as preliminaries to the full house diet.

Too great emphasis cannot be placed on the fact that no diet list should be followed implicitly; that preparation and cooking of food require skill, and that the methods employed affect the results to a very appreciable degree.

I.

DIET FOR GASTRIC ULCERS.

This diet is used primarily in gastric and duodenal ulcers, the idea being to give as little food as possible to the patient, but enough to keep up caloric value, and thereby to lessen irritation.

To be served at hours of 8, 11, 2, 5, 8.

From first to seventh day, inclusive, all eggs are beaten.

From seventh to fourteenth day, inclusive, half are beaten and half cooked. Third week: Soft care diet.

Fourth week: Soft diet. Fifth week: House diet.

Absolute quiet for four weeks. Bowels not to be moved for first week, not often for three weeks; then small glycerine or warm water enema. Out of bed twenty-eighth day. Home sixth to tenth week.

II.

DIET FOR HYPERACIDITY (SALT POOR).

This diet, which is high in protein, is indicated in hyperacidity. HCL is used up entirely in protein digestion. It is salt poor because salt enhances production of HCL. To be used for gastro-enterotomy and duodenal ulcer when patient is put on house diet.

Roast meats, steak, bacon.

Eggs in any form.

Cereals; rice as a vegetable or cereal.

Legumes, green vegetables; salads, except those made of fresh fruits.

Breads, of coarse flour.

All fruits, except lemons, grape fruit, and gooseberries.

Fruits given to patients in this condition are better if cooked.

Soups may be given sparingly—except tomato.

Desserts: Cream desserts, custard, gelatines, soft puddings.

Milk may be given between meals. No coffee or tea.

Olive oil may be taken in large quantities.

III.

DIET FOR SUBACIDITY (LOW PROTEIN, SALT HIGH).

This diet, as its name implies, is for low acidity in the stomach. Since protein digestion depends primarily on hydrochloric acid, and since this is low, it will be evident that protein will not be well cared for. Salt should be high, since it is a forerunner in the production of hydrochloric acid.

Bread, butter and sugar.

Cereal: Once daily.

Eggs or Fish: Once daily.

Noodles or macaroni.

Green soup.

Legumes, potato.

Fruit, dessert.

Coffee or tea.

IV.

DUBOIS'S MILK DIET.

This diet is used primarily in the cardiac cases where there is extreme decomposition. The idea is to limit fluid intake and preclude solid food from an already over-congested and inactive intestinal tract.

Day	A. M.			P. M.				
	7	9	11	1	3	5	7	9
	oz.	oz.	oz.	oz.	oz.	oz.	oz.	oz.
1	3	3	3	3	3	3	3	3
2	4½	4½	4½	4½	4½	4½	4½	4½
3	6	6	6	6	6	6	6	6
4	9	9	9	9	9	9	9	9
5	12	6	6	9	6	6	9	6
6	12	6	6	9	6	6	9	6
7	Light diet c milk in afternoon.							

On fifth day: Brown bread added to diet, with honey or butter. G. A. M. lime juice, 2 ounces in water; 4 ounces if ordered. No other fluid unless ordered.

V.

CARDIAC DIET.

This diet is designed to meet the needs of chronic heart cases, because of low fluid content and the fact that it is

an easily assimilable diet. Since we have great congestion of the alimentary tract, digestion proceeds slowly. It is also a diet of food materials which will not readily ferment. Fermentation and distention are contraindicated because of the added embarrassment to the heart action and circulation.

Water: In limited amounts. To be specified by the ward man.

Ice: In small quantities in severe cases.

Milk: T. I. D., 8 ounces—sipped slowly with meals.

Vegetables: All green vegetables. Cereals and starchy vegetables are restricted. No fermenting vegetables, such as those of the cabbage family, or legumes.

Bread: In small amounts.

Meats: Roast beef, steak, lamb, chicken, fish. No internal meats, such as liver, sweetbreads, heart, etc. No raw, smoked, cured or rare meats.

No eggs.

Fats: Butter, cream, olive oil, mayonnaise.

Desserts: Junket, custards, jellies, ices, sherbets, stewed fruits, oranges, grapefruit.

VI.

HIGH CALORIE TYPHOID DIET.

As the name implies, this gives as great a number of calories of food as possible to a typhoid patient, and takes away the undesirable feature of a solid diet which would enhance perforation and irritation to an ulcerated and inflamed bowel.

Milk: Hot or cold; modified with lime water, soda water, Apollinaris or Vichy; or in the form of kumyss, butter-milk, whey, junket or peptonized milk.

Tea or coffee.

Soups: Cream soups, or purees with all vegetables strained; clear soups; broths; oyster stew, with oysters removed.

Gruels: Of any cereal not containing very high percentage of cellulose, and always strained through fine strainer.

Albumin drinks: Water, plain or flavored with fruit juices; milk, plain or flavored with fruit juices.

Ice cream, or ices, without solid particles of fruit or nuts.

Eggs: Soft-cooked, raw, or in the form of egg-nog or custard.

Meat: Finely minced chicken or beef, or scraped beef.

Crackers soaked in milk or broth.

Soft puddings, gelatine, apple sauce, strained.

VII.

DIABETIC DIET.

Carbohydrate food may be given to chronic cases in small amounts at instigation of ward man. This diet is so-called carbohydrate-free. For in diabetes the patient is unable to assimilate carbohydrate food at all or in any but small amounts, and consequently any taken above his tolerance will immediately pass into his blood, causing high sugar content, and the kidney will be unable to hold it back longer and it will filter through into the urine, giving rise to the condition we know as glycosuria, the chief manifestation of diabetes.

Soups: All stock soups and bouillons.

Meats: Meats, poultry, and fish of all kinds not prepared with flour.

Eggs in any form.

Vegetables: Asparagus, artichokes, cauliflower, cabbage, brussels sprouts, sauerkraut, onions, young green beans, tomato, celery, lettuce, chicory, watercress, endive, spinach, pickles, olives, mushrooms, eggplant, Swiss chard, either leaves or stalks.

Gooseberries, rhubarb, grapefruit.

Nuts of all kinds except chestnuts.

Breads: Bran bread.

Desserts: Gelatine sweetened with saccharine and flavored with coffee, cream, nuts, sherry, brandy. Custards made of cream and sweetened with saccharine. Clotted cream. Ice cream.

Cheese: All kinds used abundantly.

Beverages: Tea, coffee, lemonade sweetened with saccharine.

Fats: Should be used plentifully in cooking; salad dressings, cream.

VIII.

NEPHRITIC DIET.

This diet is low in most extractives, since these substances are high in purin bodies, which are eliminated poorly by the kidneys. It is also low in salt, since salt is eliminated poorly and the edema of nephritis is largely dependent on the high salt content in the tissues from the fact that a diseased kidney eliminates salt poorly. The fruit acids, being also undesirable to inflamed kidneys, are either left out if they contain high amounts of the acids, or the fruit is cooked, which, in a measure, overcomes that undesirable feature.

Milk in any form, and foods made from milk—in limited quantity; buttermilk; kumyss; whey; junket; peptonized milk; cream; cocoa.

Cream soups of all kinds, except cream of beans and cream of peas.

Fruits of all kinds, stewed, except lemons and grapefruit.

Vegetables: Potatoes, squash, carrots, beets, cabbage, cauliflower, brussels sprouts, lettuce, celery, artichokes, tomatoes, spinach, sauerkraut, asparagus, onions.

Fats of all kinds: Butter; cream; olive oil (in salad dressing).

Sugar in abundance.

White bread and cereals in moderate amounts; toast; zwieback; crackers.

IX.

PURIN-FREE DIET.

This is given to gouty patients because the purins are the forerunners of uric acid, and since the disease is a deposit of sodium urate or a salt of uric acid in the tendons and joints, it will be evident that two things should be low in this diet: anything that favors uric acid formation, and any excess of salt (sodium chloride), since sodium urate is a combination of uric acid and salt. Purins should be low because they are precursors of uric acid.

ALLOWED.

White bread and crackers.

Rice, potato, macaroni.

Apples, grapes, dates, figs, raisins, honey, nuts, oils, all forms of fat.

Milk and cheese in moderate amounts; eggs.

PROHIBITED.

Rich meats, soups, sauces, and gravies; game; salt fish; salted or cured meats; sausage; lobster; all foods highly seasoned or pickled.

Rich pastries; freshly made breads.

Tomato, cucumbers, mushrooms, rhubarb, asparagus, legumes.

Tea or coffee; alcohol in any form.

This diet is suitable for exophthalmic goiter, with the addition of chicken—salt being added and acids avoided.

X.

DIET CONTAINING HIGH IRON CONTENT.

This diet is indicated in secondary anemia and chlorosis, where the iron content of the tissues is low and consequently there is a low hemoglobin estimation in blood.

Liver, beef steak, roast beef.

Eggs.

Oatmeal; cereals made from wheat.

Bread: White, rye, whole wheat, graham, bran.

Beans: All kinds; peas.

Peanuts, almonds, walnuts, spinach, prunes, raisins, dates, figs, apples.

The following contain .001 percent of iron.

Lettuce, celery, corn, corn meal, cabbage, asparagus, potato, honey, grapes, cocoa.

XI.

BENZIDINE-FREE DIET.

Milk, crackers, and rice.

This is an iron-free diet. The idea is to free the alimentary tract of any added iron and then test the stool for iron. If there be iron present we know that since we have not given any in the food it must come from one source—the hemoglobin of the blood. It is taken as a positive test for bleeding into the intestinal tract, and evidence of an ulcer. Patients should be watched to be sure that they eat nothing but those things listed.

XII.

LIQUID DIET.

Milk: Sweet, modified with lime water or barley water, or in the form of buttermilk, whey or junket.

Broths; gruels, strained; beef juice; beef tea.

Cocoa (hot or iced); tea (hot or iced); coffee.

Fruit beverages: Lemonade, orangeade, grape juice.

Barley water or rice water.

Albumin drinks: Milk, water.

Cream soups.

Egg-nog.

Frozen creams, or ices.

Include one quart milk and three eggs daily. To be given in eight feedings.

XIII.

SOFT C CARE.

In addition to "Liquid Diet."

Dry or milk toast.

Eggs, soft boiled or poached.

Custards, gelatins.

Apple sauce; prunes, strained.

Cereals; arrowroot, tapioca or rice, in the form of cereal or dessert.

Six servings daily.

Never serve cereal and eggs at the same meal.

CONVALESCENT DIET.

In addition to "Soft c Care."

Grapefruit. (All fruits to be strained, and all vegetables strained or mashed, when advisable.)

Fish, chicken, steak, lamb chops, scraped meat balls, scraped meat sandwiches.

THE HOSPITAL HOME EXPERIMENT WITH TUBERCULOUS FAMILIES.¹

Results of an Attempt in New York City to Provide Ideal Home Conditions for Families One or More of Whose Members Had Tuberculosis.

By EDWARD C. BRENNER, M. D.,

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IN 1912 in New York City there were 10,000 deaths from tuberculosis. During that same year there were reported to the Department of Health 22,000 new cases of this disease. In every single year in New York City there are known to be at least 60,000 people marked for death from this cause alone. It presents, evidently, an imperative problem.

In dark, dirty, unventilated, overcrowded rooms exists many a family, usually with numerous children, of which family one or both parents have consumption. Frequently several of the children also are tuberculous and all are inevitably predisposed to the disease. Not infrequently the consumptive mother is nursing an ill-fated babe. In the sputum-poisoned, germ-charged atmosphere, incipient tuberculosis is developing, unrecognized

clinic and visiting nurses; the *preventorium* for the treatment of children over four years of age and predisposed to tuberculosis; the *sanatorium* for the cure of incipient patients; and the *hospital* for the segregation and care of advanced cases. These agencies, excepting in part the dispensary, treat the patient apart from his home, are concerned with the individual rather than with the family as a unit, and deal almost entirely with the physical rather than with the social and economic needs.

But tuberculosis is not merely a human disease. It is a social disorder, and the real problem is not alone the patient, but the family and the conditions under which they live. As these were basic in causing the disease, so their correction is vital to the permanent cure of the patient and to the



Fig. 1. "Sunny Jim," 4½ pounds under normal, and his mother, before admission.



Fig. 2. "Sunny Jim" one month after admission.

and unchecked. The infected, absolutely unsegregated in this close-knit family life, and opposed to separation from their loved ones, constitute a deadly menace to their family and neighbors.

The home itself is in disorder, the family in partial or utter dependency. Formerly self-respecting and independent, they have now lost the hope and often the capacity for self-support. Standards of living and of morals have either deteriorated or utterly vanished. This description is literally true of hundreds of families among the tenement poor in New York City.

To relieve these conditions various agencies are at work. Among these, and attaining a valuable measure of success, are the *dispensary* with its

eventual welfare of his family. To treat the social ills, therefore, is quite as important as to cure the disease, for without social rehabilitation the disease is most liable to recur in the patient and to continue in his family.

Based upon such convictions as these the Home Hospital experiment was established by our Association on March 19, 1912, for the combined treatment of tuberculosis and poverty among the tenement poor of New York City. More specifically, the object sought is to demonstrate that if sanitary housing with ample sunshine and fresh air, adequate income, including good and abundant nourishment, freedom from undue work and worry, reasonable segregation, skilful medical care, and constant nursing supervision be provided, it is possible:

1. To prevent the spread of tuberculosis from

¹Paper read by Donald B. Armstrong, M. D., Director Department of Social Welfare, New York Association for Improving the Condition of the Poor, at the Southern Conference on Tuberculosis at Atlanta, on November 30.

the sick to the well members of the family and particularly to protect the children from infection;

2. To cure any of the family who are in the early stages of the disease;

3. To secure improved health and larger earning capacity to patients whose cases are moderately advanced; and,

4. To complete, at least in instances, the rehabilitation of the family, physically, economically, and socially.

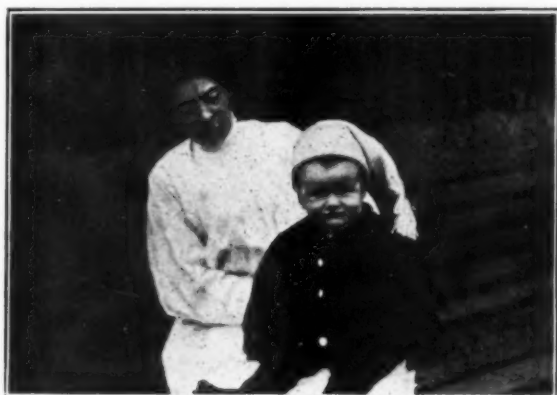


Fig. 3. "Sunny Jim" one year after admission; weight 23½ pounds.

The Home Hospital, ideally located at 78th Street and John Jay Park, occupies two entire sections of the East River Homes. One section was opened March 19, 1912, when the experiment was established; the second one was leased last year and was occupied on November 24. Two open staircases lead to the forty-eight apartments, consisting of from two to four rooms each, including one or more bed-chambers with open-air sleeping balconies. From a sanitary standpoint these apartments far excel the most exclusive apartments in New York City. No expense has been spared to provide a maximum amount of sunlight and ventilation for each room. Even the windows, extending from ceiling to floor, are arranged in three sashes, so that when open two-thirds of the space is unobstructed. On the roof is a spacious solarium, with hedges of privet and geraniums. A part of this solarium is reserved for the patients. Here, in reclining chairs, they take the cure. Another part of the roof is a children's playground, where there is no premium on fresh air and sunshine. There they play and make merry, remote from the danger of infection. Still another part of the roof is occupied by a fresh-air school.

In selecting families to participate in this experiment, preference has been given: 1st, to families in which both poverty and tuberculosis are more or less incipient; 2nd, to families believed to possess sufficient intelligence to cooper-

ate in the experiment; 3rd, to families in which dependency is due to tuberculosis of the wage-earner; and 4th, to families in which tuberculosis of the mother renders it inadvisable to keep the home together under ordinary circumstances; in general, to poor families made or kept dependent by tuberculosis and in which the disease is not more than moderately advanced. Most of the families were already under the relief care of the Association and selection is made without regard to nationality or religion.

It is to be noted that treatment is provided in this way for children too young to be admitted to preventoria, for patients unwilling or unable to leave their families, and especially for the largest and, because of its irresponsibility, most dangerous, class of sufferers,—namely, the more or less chronic second-stage, and able-to-be-about cases, almost entirely unprovided for by other institutions.

The actual selection of families is made in the following manner: A relief visitor of the Association visits and carefully investigates the home conditions, and if she decides that the family is suitable, all members report to the Home Hospital clinic for examination. If the case is one which gives fair promise of being cured in a reasonable length of time, or even of such improvement as to restore partial earning capacity of the patient, the family is admitted. It will readily be seen by examining the cases in the appendix of the Home Hospital report that the selection of patients has not been confined to favorable early-stage cases.

As its name implies, one of the purposes of the hospital is to preserve the home. Therefore, so far as possible, each family is permitted and helped to live a normal home life. The medical régime adopted is that of the best sanatoria and hospitals, including regular physical examinations, weekly sputum tests, adequate segregation of the more advanced cases, open windows and outdoor life upon balcony, the roof, or in the park nearby, absolute rest for those who need it, and a graduated amount of exercise for appropriate cases, and constant medical oversight, nursing care, and home inspection.

The patients, encouraged to work on tasks proportioned to their increasing strength, are thus prepared for a return to normal activity and to complete resumption of family responsibility. When the family is about to be discharged, the securing of employment and a sanitary home completes the care provided.

To each family on admission is given careful and oft-repeated instruction in precautions necessary to prevent the spread of consumption to the

well members. Individual toilet articles are given to each member of the family and all necessary furniture, clothing and household supplies are provided. Countless minor details in respect to prophylaxis and sanitation of the home are carefully explained, and particular emphasis is laid on the value of fresh air and personal hygiene as preventives not only of tuberculosis but also of other diseases.

To care for the patients and to supervise and educate both the sick and the well members of the families, the Association has a staff of fourteen



Fig. 4. In the clinic. Physician examining child of a patient.

persons at the hospital. This consists of a superintendent, a medical director, an attending physician, two nurses, a nurses' helper, a mothers' helper, two clerks, a cook, and four cleaners.

All positive and suspected cases are examined every six weeks, healthy children every three months, and healthy adults every six months. The results of each examination are recorded on a separate chart. After each examination the patient is advised as to his condition, and is given instructions accordingly. If the patient has active symptoms, with cough, sputum, elevation of pulse and temperature, etc., he is ordered to remain in bed. He sleeps out of doors on the balcony, is carefully fed, and isolated as far as possible from the well members of the family. The children are not allowed in the patient's bed-chamber or in close contact with him. The family is encouraged to spend the day on the roof, and to return to the apartments only to eat and sleep.

With improvement, the patient spends the day on the roof, reclining in a steamer chair. Extra nourishment is given him at 10 a. m., at 3 p. m., and just before retiring. Arrested cases are at first allowed to do light work for a few hours each day, care being taken that the temperature, pulse, weight, and physical signs and symptoms remain satisfactory.

A daily morning and afternoon temperature and

pulse record is kept of all positive and suspected cases. Each week sputum examinations are made and weights are recorded. Each patient is provided with a notebook, in which answers to the following questions are entered daily:

How many hours sleep?
How many sections window open at night?
Head or feet to open window?
Amount cough, sweat, or expectoration (during both day and night)?
Hour of arising?
Morning tub?
Cold water to chest?
Breakfast menu?
Morning temperature?
Hour started for roof?
Dinner menu?
Hour returning from the roof?
Nourishment at 10 a. m.?
Temperature at 3 p. m.?
Supper menu?
Nourishment at 9 p. m.?
Hour of retiring?
Amount of exercise or work during day?
Amount of sleep during day?
Chills, day or night?
Total hours spent in the open during day?
Total amount of milk and eggs during day?
Condition of bowels?
Gain or loss in weight each weighing day?
Amount of earnings, if any?
General remarks?



Fig. 5. Tuberculosis precautions: Instructing a mother in care of food and sterilization of dishes after meals.

The records, besides being extremely interesting, keep always before the patient the essentials of the cure, and there has gradually developed a friendly rivalry among the patients, for each desires to excel in improvement. The hygienic-dietetic form of treatment has been followed. No special drugs have been employed. Tuberculin was administered in suitable cases during the second year of the experiment.

The attending physician visits and holds clinics at the hospital on Monday, Wednesday, Friday and Saturday of each week. One evening each month he meets all the patients in class confer-

ence. These gatherings are informal, the patients being encouraged to discuss their condition and ask questions.

At the same time that the patients are being treated for tuberculosis, the other members of the family are treated for any physical defects they may have. They are also taught how to live properly and how to preserve their health. To the mothers, instruction is given regularly in cooking, sewing, nursing, care and feeding of infants, personal cleanliness, hygiene and sanitation. The children attend regularly a fresh-air school on the roof.

What have been the medical results of this experiment? During the first year eleven families



Fig. 6. Caring for the baby; nurse teaching a mother.

were discharged, six having been rehabilitated physically, socially and economically. The other five were dismissed for intemperance or refusal to cooperate. During the past year fourteen families were discharged, eleven having been restored to health and earning capacity. Three refused to follow advice and were dismissed.

Since the beginning of the experiment, of a total of thirty-six positive patients and ten suspects discharged during the two years only two cases have relapsed. It is most gratifying to visit the homes of these discharged families and to find sanitary and prophylactic measures observed. The children continue to gain in health and strength and the mothers frequently express their gratitude for all the good and happiness the Home Hospital has brought them.

In no instance has a well member of a family developed symptoms of tuberculosis, either while at the Home Hospital or since discharge. This is convincing proof that, although the adult patient remains at home, there is little danger of infecting others if prophylactic measures are maintained. It also indicates that the degree of tuberculosis in any community, like the incidence of typhoid fever, is a fair index of that community's hygienic status. Teach people to live properly and tuberculosis will rapidly wane.

Inasmuch as some of the adult patients are of a somewhat different type from those treated at

sanatoria, it has seemed wise to classify them under the following groups:

Group A. Cases with definite physical signs of pulmonary tuberculosis and with tubercle bacilli in their sputa.

Group B. Cases with definite physical signs of pulmonary tuberculosis, but without tubercle bacilli in their sputa.

Group C. Inactive cases with evidence of slight healed lesions.

Group D. Cases which have been in the hospital insufficient time to have their disease arrested.

During the two years the hospital has cared for 62 families, including 315 individuals, classified diagnostically as follows:

136 positive cases.

71 suspects.

108 non-patients.

The results for the adult groups for those cases with positive signs are as indicated by the following figures:

Total cases	50
Apparently cured	21
Arrested	16
Improved	8
Not improved	4
Died	1

This record, I believe, compares very favorably with that of the other tuberculosis sanatoria, especially in the second-stage cases. There were 31 such cases, 13 of which were apparently cured. Of the 15 first-stage cases, 8 were cured.



Fig. 7. Von Pirquet test for tuberculosis.

Not a single patient who has followed advice has failed to improve.

In no instance has a well member of a family developed symptoms of tuberculosis while a resident at the Home Hospital. This is highly presumptive evidence that with proper supervision of patients under hygienic surroundings there is little danger of infecting others.

The greatest good obtained is not the mere restoration of the adult member of the family to health and earning capacity. He has the disease and perchance may some day succumb to it, for it is well recognized that tuberculosis is a chronic relapsing disease. It is the children who are of vital importance.

Today's anemic child of the tenement is the coughing, germ-spreading adult of tomorrow. Left unrescued in its inimical environment, it may never reach maturity. The children from 3 to 14 years of age have, therefore, claimed our special attention. Upon admission over 75 per cent were under-developed, pale misfits—excellent candidates for the so-called latent or pre-tubercular class. During their residence at the hospital they are practically isolated from the infected adults and are given every hygienic advantage. They are well fed, receiving extra nourishment twice daily. They spend the entire day in the fresh air, and at night sleep in rooms with the windows wide open. The children of school age attend the open-air school on an adjoining roof.

Realizing the great difficulty of diagnosing tuberculosis in children, and also the difference of

disease. It is probable that a similar appalling percentage holds true in thousands of tenement children.

The results obtained with the children have been so gratifying that we believe the experiment would be well worth while even had the adult cases shown no improvement.

A study of the weight charts of the positive and suspect children is most interesting. When admitted most of the children are under weight and under-developed. At the end of six months of treatment at the Home Hospital their gain in weight, according to their respective ages, not only equals that of the normal healthy children in the hospital, but in most cases is considerably in excess.

Interesting also is a comparative study of the gain in weight according to age of healthy normal



Fig. 8. The open-air school on the roof of the Home Hospital.

opinions of pediatricians as to what syndrome constitutes active pulmonary tuberculosis, we have adopted the expedient of classifying our suspected children under two groups:

Group A: Those under twelve years of age who present the following symptoms:

1. Under weight for age.
2. Constant or frequent cough.
3. Occasional or constant temperature of undiscoverable origin.
4. Rales (near one or both nipples, constant or intermittent), interscapular dullness.
5. Positive von Pirquet reaction (under 4 years).

Group B: Those who are delicate and present some of the above symptoms and physical signs.

According to this classification we find 60 patients and 67 suspects among the 189 infants and children under care. In other words, 31.7 per cent of the children of tubercular parentage already have thoracic tuberculosis, and another 34.4 percent are excellent candidates for the

outside children and of those at the Home Hospital for a period of six months. It was noted that the under-developed children have made a gain not only comparable to but considerably in excess of that of healthy children so that at the end of six months many have reached a weight normal for their age.

The improvement of the infants (1 to 3 years) quite rivaled that of the children. The babies are placed in cribs on the roof, where during the summer there is always a cool breeze. Careful formula feeding, good nursing, "patience and hope," have had their reward. Each week has brought results.

The average gain in weight for the infant patients has been 3.78 pounds in 180 days average residence, and the suspect infants have gained an average of 3.4 pounds in a similar time.

One marasmic infant, Kathleen C., weighed six pounds and fifteen ounces at nine months. Her

normal weight at this age should have been 17.5 pounds. The baby had been at a good city hospital and the mother was told it could not live. Shortly after admission to the Home Hospital the infant gained one pound and seven ounces in one week and has continued to gain at the rate of nine and three-quarter ounces a week.

The excellent results obtained with the infants and children indicate, we believe, the real value of the experiment. These children of today are the adults of tomorrow. Left unrescued in their tenebrous environment, many would have succumbed to the disease or would have reached maturity as weaklings, their health undermined with tuberculosis and themselves a menace and burden to society, as their parents are now.

Briefly, what can be said regarding the effect of the Home Hospital treatment upon the earning power of the family? Let us take the families discharged in the last year, and we see that whereas their average weekly income on admission was \$6.34, on discharge it had increased to \$11.17.

Taking the 39 families still under care at the end of the last year, we find that their average weekly incomes have increased from \$3.37 to nearly \$6.00.

Thus by restoring to health wage-earners and other members of dependent families and by teaching each to live properly and to manage a home efficiently, the Home Hospital has increased not only the earning powers of those admitted, but also has raised the standard of living in each home. The social and economic results during the two years of the experiment strengthen our belief that completely to rehabilitate families either made dependent by tuberculosis, or whose physical breakdown has resulted from destitution, the treatment of the physical and social ills must be combined.

What has the method cost and how does it compare with the usual hospital or sanatorial treatment? The cost of treatment, including living expenses, cost of medicine, supervision, and administration, is indicated by the following figures from the Home Hospital report:

The daily cost per family was \$3.32; per individual, 65 cents; per patient, 66 cents; per non-patient, 63 cents.

This cost per patient of 66 cents compares very favorably with the average per capita cost of 17 New York State tuberculosis institutions giving individual treatment, the figure for which is \$1.40 or over twice the Home Hospital figure.

To this difference must be added the many unique advantages of the Home Hospital method, such as: (1) the directness of its attack upon the

home conditions as a crucial, underlying cause of tuberculosis and its consequent poverty; (2) the readiness with which unsuspected, incipient cases may be detected and checked; (3) the exceptional opportunity it affords for adequate control of the disease and family; (4) its avoidance of the opposition, deterrent influence of worry and other hardships inevitably occasioned by the separation of the sick from the well members of the family; (5) its preservation of the integrity of the home; (6) its care of classes of patients who either could not or would not go to institutions; (7) its fostering an increase of earning capacity in the wage-earner and a gradual return to normal conditions; (8) its provision against a return of either the patient or family to the inimical environment where the disease was contracted and is likely to recur; and (9) its care not only for the physical, but for the economic and social ills not merely of the patient but of the entire family.

Such a work aims at causes, seeks not only the cure of the individual, but the protection of society, is concerned with the patient, his family and environment and deals with fundamental questions of ideals, of livelihood, and of life.

Red Cross Discourages Decorations.

Through the State Department, Maj.-Gen. George W. Davis, U. S. A., retired, chairman of the Central Committee of the American Red Cross, has addressed a letter to the American ambassadors to the European countries at war, in which the bestowing of valuable presents or decorations upon individuals representing the American Red Cross by foreign sovereigns or officers of foreign Red Cross societies, is discouraged. This letter was prompted by the fact that on former occasions beneficiaries of the aid of American Red Cross surgeons and nurses and other representatives have awarded medals and other decorations.

"While we have no intimation that similar action may be taken by the government of the country to which you are accredited or by the Red Cross of that country," says the letter, "I am writing in the hope that should you learn of any such proposal you will kindly let it be known as coming from the Central Committee of the American Red Cross that they hope that no present, decoration, or testimonial will be offered to any individual connected with our Red Cross.

"Our organization is an impersonal one, and our efforts are always prompted by motives of sympathy for all who suffer, irrespective of nationality or creed. The individuals composing the organization, and its officers, are simply the agents of the National Society into which their personality is merged. Such assistance as may be rendered is accomplished by means of the contributions of the American people."

Two persons were badly burned and about \$4,000 worth of drug supplies were consumed when a forty-eight-gallon barrel of alcohol exploded at the Memphis (Tenn.) City Hospital recently. The explosion occurred when a negro porter drove a steel spigot into the barrel. It is supposed that the spigot was driven against a metal hoop, causing a spark of fire, and this ignited the alcohol.

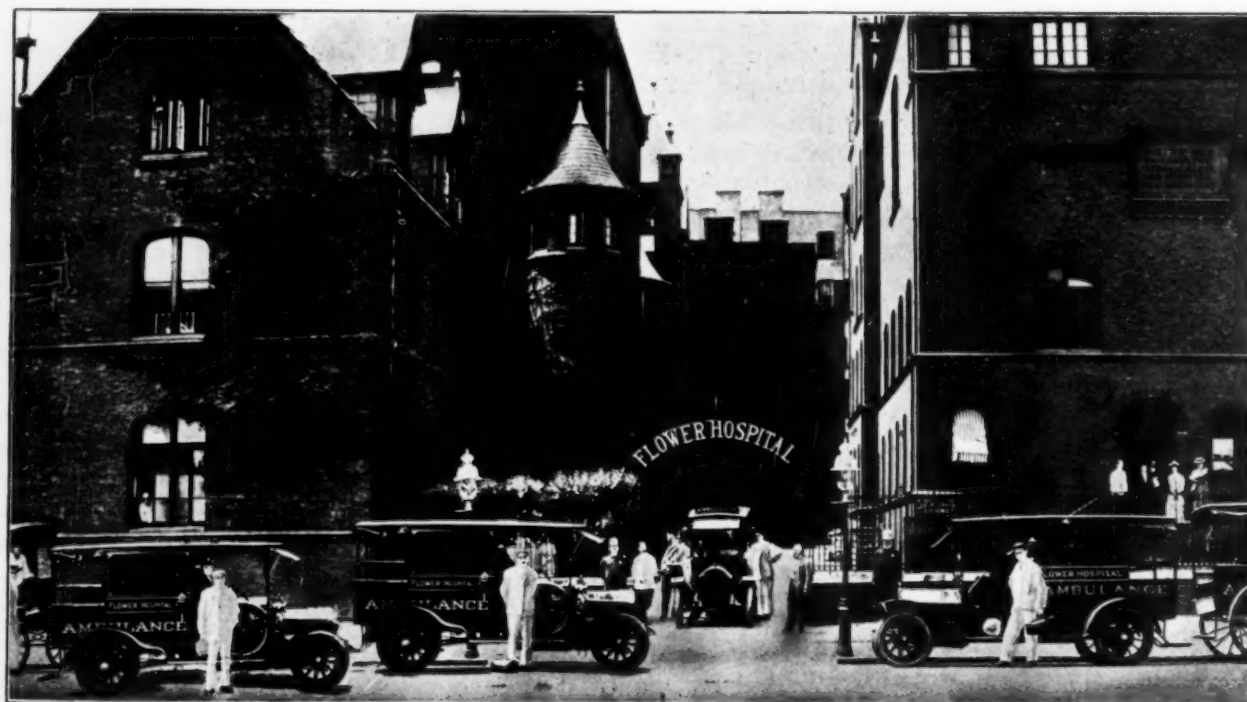


Fig. 6. Four gasoline and two horse ambulances used by Flower Hospital.

SYSTEMATIC AMBULANCE SERVICE FOR METROPOLITAN HOSPITALS.

New York's Experience Demonstrates That Electrics, Gasoline Cars, and Horses Have Definite Use—Figures of Cost Differ Widely and Are Not Complete—Some Comparisons.

BY NORMAN MAUL, NEW YORK.

[Concluded from January number.]

NEW YORK Hospital was the second to begin the operation of an emergency service, the vehicles being installed in 1877. Today this hospital maintains seven autoambulances, and the space that was once occupied as a stable is now the living quarters of the corps of ambulance drivers. The New York fleet is all electric, the first machine having been installed in 1905. This is a one-ton vehicle, and, although it is not now on "first call," it has some interesting records. At the disastrous Triangle shirt factory fire it carried, on one trip, eight patients to the hospital, a distance of about half a mile, and on another occasion it made a fifty-mile trip to a hospital beyond the city limits. The trip was made on a stormy day, and in places the mud was hub deep. Only an hour's boost of the batteries was necessary to get the car home.

The House of Relief is the down-town branch of the New York Hospital. This institution uses one electric car and two horse ambulances. In 1912 New York Hospital responded to 6,971 calls and the House of Relief to 5,251. As in the case of Bellevue, no close record was kept of the operating costs of these ambulances. That there were, however, evident economies is shown in the report of Dr. Thomas Howell, the superintendent, in

which he stated: "We find the electric vehicles much more satisfactory than the horse-drawn ones, especially in hot weather. During one hot day nearly ninety calls were answered between the two stations, and an electric ambulance responded to thirty calls in twenty-four hours." It was such experience as this that led the New York Hospital to keep adding to its fleet, the latest installation being two machines, which began work last fall.

POLYCLINIC'S COSTLY SERVICE.

In sharp contrast with the incomplete operating records of Bellevue and New York hospitals are those of the Polyclinic, which inaugurated its ambulance service in October, 1912. Polyclinic operates in an up-town district, extending from Forty-second street to Ninety-sixth street, and from Central Park west and Eighth avenue to the North River, making a territory of about three square miles. To cover this the hospital uses three high-power gasoline cars. One has a speed of fifty-five miles an hour, the other two are capable of forty-eight miles. The three cost \$8,000 in May, 1912, and five months later they were placed on emergency call. During the first year of their operation they responded to 4,711 calls, and their operation cost \$17,459.82. This sum includes a

matter of more than \$1,000 for liability insurance, almost \$2,900 for repairs, about \$4,300 for salary and board for the three chauffeurs, and about \$900 for gasoline, oil, and sundries. It does not include depreciation, which, based on their one year's experience, the hospital officials think should be something like 30 percent.

THE OLDEST AUTOAMBULANCE.

While not operating on emergency service, the ambulance of Mt. Sinai Hospital is interesting chiefly because of its age. It was presented to the hospital twelve years ago, costing the donor at that time \$3,000. Used exclusively for the transfer of private patients, it averages about 300 calls a year. The annual cost of operation varies between \$600 and \$700 in years when no extensive repairs are made to between \$1,600 and \$1,800



Fig. 7. Dean of New York's motor ambulances—An electric that was installed by Mount Sinai Hospital in 1902.

when the ambulance is thoroughly overhauled and new batteries supplied.

THE NEED OF AUTOS.

The passing of the horse is quite pointedly shown in the following extract from the report of Dr. Willis G. Nealley, superintendent of Brooklyn Hospital:

"The ambulance service shows a decrease of 514 cases, there being only 2,505 in 1912 as compared with 3,019 in 1911. This decrease is to a great extent due to the installation of a motor ambulance service in one of the nearby hospitals, which has divided the ambulance service in this section of the city."

Brooklyn Hospital covers one of the busy sections of Brooklyn—the entire down-town shopping district, the approaches to two of the big East River bridges, and a large manufacturing district

being in its territory. Until the present time, horses have been deemed quite sufficient, but the nearby auto, which took away 500 calls, was an unanswerable argument in favor of motors. Motors will be installed on the completion of the new building, which is now in course of construction. The operation of the two horse vehicles, which



Fig. 8. One of the three gasoline ambulances used in the hilly territory of the Knickerbocker Hospital.

answered 2,505 calls in 1912, cost \$2,612.02, while for 2,678 calls in 1913 the cost was \$2,450.63.

GASOLINE AND ELECTRIC AT LINCOLN.

Lincoln Hospital, which ministers to a large territory in the Bronx, operates two gasoline cars and an electric. The service runs about 250 calls a month. There were 2,047 calls in 1912, and for the hospital year ending September 30, 1913, this had increased to a total of more than 2,800 calls.



Fig. 9. Interior of the Knickerbocker Hospital ambulance.

First calls are taken by the gasoline cars, while the electric, which has been in service a good many years, is held in reserve. During the mid-February blizzard, however, this equipment, in common with most of the autoambulances in the city, was tied up by the snow, and, until conditions had been somewhat restored to the normal, Dr. Gwyer, the superintendent, rigged up a bor-

rowed sleigh and thus kept his emergency service in operation.

HORSES IN THE BLIZZARD.

In Brooklyn during the storm the only ambulance in three adjoining districts was the horse vehicle of the Methodist-Episcopal Hospital. This took calls in its own territory, the Norwegian Hos-



Fig. 10. One of the fleet of seven electrics used by New York Hospital.

pital district, and that of Holy Family Hospital. The Methodist-Episcopal electric was laid up, and the horse vehicle was converted from a single-horse rig to a two-horse outfit, an extra horse being hired for the work.

Under normal conditions the one electric handles three-quarters of all this hospital's calls, which total about 1,800 a year. The horse rig takes second calls, and is used at night, during the chauffeur's off duty. The electric was installed in November, 1911, and the only renewals at the present writing are the tires, which have been changed once, and about half the battery cells.

The expense of operating the electric and the horse rig during 1913 was only \$1,556, a figure that is almost impossible of improvement in consideration of the service rendered. The auto gave all the speed that was needed, while the horse aided its faster companion in taking second calls and going on duty when snow tied up all types of motor vehicles.

GASOLINE AMBULANCES AT FLOWER HOSPITAL.

The big section of Manhattan between Forty-second and One-hundred-and-tenth streets and extending from Eighth avenue east to the East River, with the exception of a small territory in the northeast corner, is covered by Flower Hospital. This hospital operates a mixed service of gasoline and horse vehicles. There are four autos in active service, while two horse rigs are held in

reserve. During 1912 there were 6,124 calls. This ambulance equipment, including the building, harness, tools, extra parts, etc., cost \$23,000, while the annual cost of operation is about \$8,000. This, according to Dr. Royal S. Copeland, is only an estimate, nor does it include interest on the investment or an allowance for depreciation.

THE KNICKERBOCKER EQUIPMENT.

The Knickerbocker Hospital, formerly the J. Hood Wright, serves the territory from Ninety-sixth street to One-hundred-and-forty-fifth street, between Eighth avenue and the Hudson River. Three high-power gasoline cars, installed in the summer of 1913, have displaced three horse ambulances and four animals. This hospital averages about 200 calls a month, which are equally divided among the three vehicles, as they rotate according to the off-duty days of their chauffeurs. In changing from horses to motors, two experienced auto drivers were hired, while one of the horse drivers qualified as a chauffeur and was retained. Geographically, the Knickerbocker district is one of the hardest in the city, for almost every north and south street is a heavy-graded hill.

RELIABLE DATA NOT AVAILABLE.

It is to be regretted that these various hospitals have not kept a closer record of the cost of operation of their emergency ambulances. Such data,

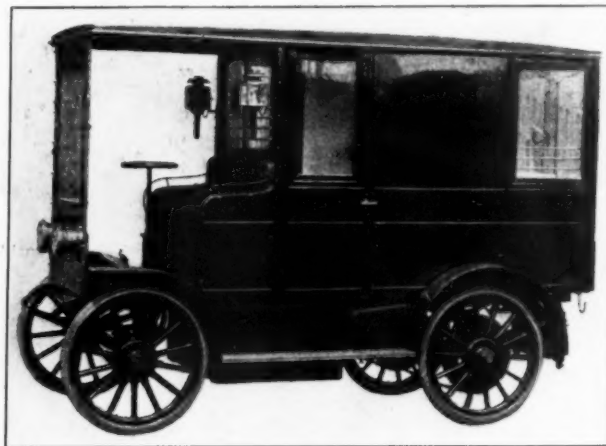


Fig. 11. Ambulance of Newton Hospital, Newton, Mass., in service two and a half years.

together with a report of the work done and the operating conditions, would be invaluable in guiding hospitals that have not yet invested in motor equipment.

The few figures presented are interesting chiefly because they show the extremes of such operating cost. Polyclinic's \$17,000 expense might not be equaled by another hospital anywhere. The \$1,500 low mark attained by the Methodist-Episcopal Hospital is about as low an operating cost as any hospital could expect. Yet, with these two instances left out of consideration, there are certain

broad general facts that are plainly evident. The first is that the gasoline car and the electric car are not rivals in ambulance work. Each has a field in which it is better; as for the horse, he is indispensable.

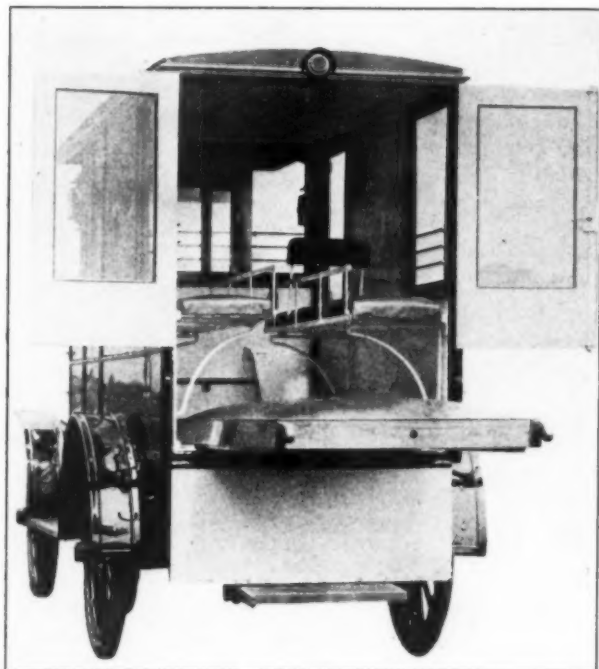


Fig. 12. Interior of ambulance of Newton Hospital, Newton, Mass.

The gasoline car is the fastest vehicle available. It is capable of long runs at a sustained speed of thirty to forty, even fifty, miles an hour. Of course such speed and endurance must be paid for. It is doubtful if the high cost of gasoline car operation justifies its use in the ordinary city district. For country hospitals and those operating in big

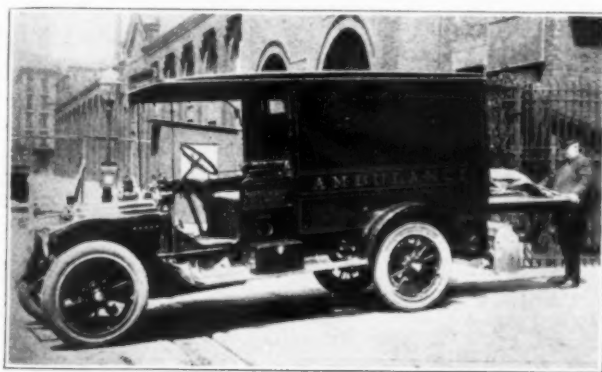


Fig. 13. White gasoline ambulance, Department of Health, New York City.

districts, where long runs and hilly roads are encountered, the gasoline car will render the most satisfactory service.

The electric car is not so fast, although with speeds varying from twelve to twenty-two miles an hour, it is quite sufficient for city operation. In a run of a mile, which is about the average in

cities (New York at least), the difference between a fifteen-mile-an-hour and a fifty-mile-an-hour car is nil when traffic delays are considered. The electric is far cheaper to operate than the gas car, and, with the speed factor eliminated, it should be generally used for city work.

The horse, of course, is gradually being crowded out. In hot weather he works at a great disadvantage; on icy pavements in winter he is in constant danger of falling; the cost of feed is gradually becoming higher; yet, with the recollection of his service last February, who shall say that the horse has seen the end of his ambulance career?

DR. CRILE GOES TO EUROPEAN WAR.

Lakeside Hospital, Cleveland, Sends Famous Surgeon, with Corps of Assistants, to American Hospital, Paris.


A party of Cleveland (Ohio) physicians and nurses, headed by Dr. Geo. W. Crile, sailed December 30 to establish a surgical ward in the American Ambulance, in Paris. Dr. E. F. Kieger, Dr. Charles Stone, Dr. S. S. Ledbetter, Miss Agatha Hodgins, and Miss Iva Davidson were members of the party. The undertaking is being financed by the trustees of Lakeside Hospital. Dr. Crile is expected to remain in Paris several months, after which his place will be taken by Dr. William F. Lower, who is associated with him at Lakeside. The ward to be established will be known as the Lakeside ward.

KEEP FAMILIES TOGETHER.

Kansas Man Insists on State Paying Parents to Care for Children Rather Than Place Them in Institutions.

H. C. Bowman, a member of the Kansas State Board of Control, is in favor of the "mothers' pension" plan of providing for the welfare of dependent or neglected children as opposed to caring for them in state asylums. A recent report of the Kansas State Orphans' Home shows that it costs the state \$4.65 a week for every child "fathered and mothered" at this institution. Mr. Bowman is of the opinion that it would be better to add to the resources of the natural parents of the children while they are getting on their feet and keep the family together, and he believes this could be done at an expense to the taxpayers that would be less than what it costs to operate the present system. Mr. Bowman has reached his conclusions with a full knowledge of the common objections to the pension plan.

The A. N. Brady Maternity Home, erected at Albany, New York, at a cost of \$150,000, will soon be ready for occupancy. It is a five-story structure, thoroughly fire-proof. The *Albany Evening Journal* is responsible for the statement that there is "not a stick of wood in the building." In the interior everything is of steel, finished circassian walnut. The floors are of cork preparation. On the entrance floor are the general office, the examination room, consulting rooms, resident physician's room, guests' rooms, nurses' dining room, and the general diet kitchen. On the second floor there is a ward with twelve beds, two wards with four beds each, two quiet rooms, diet kitchen, laboratory, etc. The third floor has ten private rooms, some with private baths. The fourth floor is the same as the third. On the fifth floor are the operating and sterilizing rooms. An electric elevator connects the floors. Glass enclosed verandas are built on three sides of the second, third and fourth floors. The home was made possible by a donation from the late Anthony N. Brady and his family.



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Contributors, subscribers, and readers will find important information on advertising page 34.

Examination of School Children.

One of the most notable contributions to the propaganda for the public health that has ever been made was that recently presented by the New York City department of health, in the form of a system of physical examinations of employees of the department.

It was the health commissioner's idea that if he could show some definite, advantageous results by such a system, inaugurated among the department's employees, it would prove an unanswerable argument in favor of the periodic examination of well people to keep them well.

The department's experiment had most interesting results; three hundred employees were taken for the first test, the commissioner, Dr. S. S. Goldwater, submitting himself as the first volunteer for examination. Here is a tabulation of the findings by the medical examiners:

Six errors of nutrition, based on decided variations from normal weight in proportion to height.

Seven decided defects of hearing, and one instance of suppurating otitis.

Six instances of uncorrected defects of vision.

Ten instances of marked disorders of digestion, chiefly such as affect sedentary workers.

Thirteen instances of defective teeth needing dental care.

Fifteen minor defects of the tonsils, throat and upper respiratory tract.

Twenty instances of appreciable defects of heart action,

among which appeared five needing particular precautions in regard to their manner of living.

Fourteen instances of pulmonary defect, of which three were healed lesions resulting from previous tuberculosis, two were instances of early processes put under medical care, and the remainder were minor and temporary affections.

Two instances of anemia needing medical care.

Two cases of high blood pressure needing medical treatment or alteration in manner of living or personal habits, and associated therewith errors in kidney functions.

The following minor variations from normal were found, which did not appear to affect the health of the individual, namely:

Palpable spleen, three cases; palpable kidney, one case; enlarged thyroid, one case; subacute skin affection, one instance.

Alimentary glycosuria was found in one case, but on re-examination had disappeared.

A moderate albuminuria was found in a number of cases, but not to an extent to indicate pathological condition except in the two cases above referred to, which were associated with arterial hypertension.

One severe disorder of the nervous system was found, which should respond to appropriate medical treatment and be permanently relieved.

The insurance companies have, for a long time, advocated the periodic examination of policy holders, to insure early diagnosis and, if possible, prevention of approaching disease. Some of the industrial corporations have likewise been thinking about a similar service for their employees. Dr. Goldwater's experiment should act as a strong stimulus, and hasten the day when medical examinations of well people will be the rule and not the exception.

If adults, and especially people with intelligence and education enough, and the necessary training to be employed in the health department of a great city, need precautionary medical examination and advice, what shall be said of the school children of the land? Parents are notoriously careless and unmindful of the slight deviations from normal in their children, and often people who know better, and who really want to do the best they can for their children, let things drift until some day the ailment, whatever it may happen to be, gets so bad that preventive measures no longer apply, and there is a cure to be effected in a case where a cure may or may not be possible.

Some of the parents are too ignorant to know what is best for their children, and too ignorant even to know when a child is ill and out of sorts unless it is actually down in bed with an acute illness. However, many of these ignorant people do not object to the school authorities taking the necessary measures to relieve their children of the commoner forms of child disability, such as defects of vision, bad teeth, skin lesions, and so on.

Unfortunately, it is another class of persons

who interfere most with attempts to examine and correct abnormalities in school children, namely, a group of men in this country, banded together in the name of Medical Freedom, and whose activities and whose enormous expenditures are wholly in the interest of quack medicines.

Fortunately, quack medicines, with all their criminal angles, are going out of vogue as the people become better educated, and perhaps we shall be allowed some day to approach the high standards of Oriental, or rather Chinese, medical philosophy, in which the doctor is paid to keep people well, with a convincing inference that if he allows them to become ill, he must cure them without a fee.

Let us prosecute the work of examination of school children, since by this means we can make more progress in the field of preventive medicine than by all other means combined.

Training of Nursery Maids.

There seems to be an easier feeling among the hospitals in regard to the supply of young women upon which we may draw for our nurses. The scope of nursing is broadening immeasurably; the hospitals are coming to realize that they cannot make scullery maids and domestic servants of their pupil nurses and still hope to obtain their share of probationers.

After the pupil obtains her training, to the point of graduation, she finds many fields open to her, and the most widely divergent temperaments may find congenial fields for their activities. For these reasons more young women are looking toward nursing as a career, and there is consequently a wider choice for the training schools and naturally a higher class of women for final selection.

There is one type of woman's work in the field of nursing, however, to which it seems too little attention has been paid, namely, the half nurse, half maid, half mother's helper—the companion in the home in which there are small children.

Young women, to excel in this field of woman's work, need not necessarily be highly trained; they need not of necessity be very well educated. The virtues and capacity of which they are most in need are reliability, constancy, kindliness, truthfulness, energy, and mental and physical versatility.

A few institutions have experimented with this class of women, and there is no longer any question about the success of the efforts. Why do not more hospitals having maternity and children's departments take up this work?

At first there was a feeling, on the part of trained nurses and pupils, and even among some

institution executive women, that these nursery maids were destined to take the places that ought to be occupied by trained nurses. That feeling seems to have died out, and at least in a few institutions the nurses show a disposition to help these girls less fortunate than themselves in the admission to a career.

Some of the girls who apply for training as nursery maids ought really to be in the training schools for nurses; some of them are high school graduates, come from excellent homes, and have had good home bringing up. A few of them have had to choose the nursery maid course of training because their earnings were needed and they could not afford the three years of the nursing training.

In one institution where nursery maids have been trained now for several years, they have taken their place as important factors in the community life, and families that have been able to secure their services are regarded by their neighbors as extremely fortunate.

If preventive medicine is the demand of the hour, and if hospitals are to lead their communities in those things that conserve the health of the people, what more important work is there than to train and send out into the community a class of young women who can contribute very greatly to the mental, physical, and moral health of the children, through their influence in the introduction into the homes of the principles of sanitation, hygiene, child feeding, wholesome recreation and occupation, and the things generally that mean the broadening out and the proper development of the potential bone and sinew of the national life—the child?

Let us have more nursery maids, and let us train them in the practical, everyday things that sum up into that indefinable, beautiful, meaningful charm, "the home."

News Editors for The Modern Hospital.

It gives THE MODERN HOSPITAL great pleasure to announce the creation of a corps of news editors, or special correspondents in various parts of the country, who, as a part of the regular organization, will hereafter undertake to keep our readers informed on hospital activities in this country and Canada. The list of those whose services we have been able to enlist is as follows, with the territory to be covered by each:

Mr. W. W. Kenney, Superintendent of the Victoria General Hospital, Halifax, N. S., for Nova Scotia and New Brunswick.

Miss S. E. Demarest, Secretary of the Grenfell Association of America, for Labrador, Newfoundland and the far Northeast.

Dr. G. W. Sinclair, Superintendent of the Winnipeg General Hospital, for Manitoba, Alberta and Saskatchewan.

Dr. Malcolm T. McEachern, Superintendent of the Vancouver General Hospital, Vancouver, B. C., for British Columbia, the Yukon and Alaska.

Dr. H. T. Summersgill, Superintendent of the Hospital of the University of California, San Francisco, for the sections west of the Rocky Mountains and south of British Columbia.

Dr. Moses Collins, Superintendent of the National Tuberculosis Hospital at Denver, for Colorado, Montana, Idaho, Wyoming and Utah.

Dr. L. B. Baldwin, Superintendent of the State University Hospital, Minneapolis, for the Dakotas, Minnesota and Iowa.

Mr. F. E. Chapman, Superintendent St. Louis City Hospital, St. Louis, Mo., for Missouri, Arkansas, Kansas, Nebraska and Texas.

Dr. C. D. Wilkins, Superintendent of the Louisiana State Charity Hospital at New Orleans, for the Gulf States.

Dr. Wm. H. Walsh, Superintendent of the Children's Hospital in Philadelphia, for Pennsylvania and contiguous states.

Mr. Pliny O. Clark, Superintendent of the Ohio Valley General Hospital at Wheeling, W. Va., for the Virginias and contiguous territory.

From time to time other members will be added to the corps until every community will be covered, and the work will be extended to New Zealand, Australia, the Philippines, Asia and Africa; and eventually competent correspondents will be located in the European centers.

It is the function of this splendid corps of writers not only to furnish news for THE MODERN HOSPITAL from the several sections, but to write short, crisp news-letters about the problems and the engaging activities of the hospitals in the several communities. It is their intention to keep in touch with their hospitals and with the leaders of thought in the institutions, to secure contributions on live topics, and, in short, it is the purpose of each member of the corps to keep the readers of THE MODERN HOSPITAL fully conversant with the best thought and the best work of the hospitals throughout the land.

THE MODERN HOSPITAL commends these representatives to the hospital superintendents, trustees and medical staff members in the respective sections, and urges that they give them cooperation along every line that has for its object the upbuilding, the development and the progress of every agency engaged in the work of the public health. In proportion as the hospital people support their representative, and help him, just in that proportion will all the hospital people every-

where be enabled to draw from a vast common storehouse of knowledge and information.

Papers on Special Foods.

In another column of this number of THE MODERN HOSPITAL will be found a paper by Mr. John Phillips Street, director of the Agricultural Experiment Station, New Haven, Conn. Mr. Street, working in conjunction with Professor Mendel of Yale University, has done some of the most authoritative work in the field of special feeding and food chemistry that has been presented to the medical profession. He proposes now to write a series of papers for THE MODERN HOSPITAL on foods for the sick, feeding values and studies in metabolism. The paper presented in this number is the first of that series.

THE MODERN HOSPITAL is very much elated over its success in persuading Mr. Street to prepare this series of papers. Because of the newer discoveries and the newer work in pathology, physiology and physiological chemistry, the medical profession has arrived at a stage where it is in possession of the necessary knowledge that will permit it to employ special foods for the treatment of some diseases that seem to have evaded drug therapy. For some years the profession has been vastly handicapped by its inability to get the things done for it in the hospitals that it needs to have done; to get the foods properly prepared and properly administered that it needs in the treatment of special diseases.

We have undertaken to cure this defect in medical practice by improving the dietary departments in our general hospitals, by building up a better trained class of dietitians, and indeed vast improvements have been made in this direction of recent years.

Now we find that there is a want of cooperation and want of collaboration between the medical men in the hospitals and the dietitians, neither seeming to understand the other; the medical men failing to appreciate in most cases the physical difficulties to be overcome in administering a hospital dietary, the dietitian failing to appreciate the necessities of the medical men.

Believing that a bridging over of the two independent activities of these two tremendously important factors of the public health was highly necessary, and believing that the chemist and physiologist working in and out from his laboratory could be the best possible agency to fuse the scientific and the practical in the hospital dietary, we arranged with Mr. Street to prepare this series of papers. We believe that, before he has finished, a far better understanding will be had between the administrative and the medical branches

of the hospital, that the scientifically trained man wishing to work in metabolism and to study his patient from the standpoint of the laboratory as well as the clinic will be able to prescribe what he wants in the way of special foods, and that the trained dietitian will be able to fill the prescription.

If this shall be brought about, THE MODERN HOSPITAL will be wonderfully repaid for its efforts, and Mr. Street, upon whom falls the brunt of the hard work, and Professor Mendel, who so kindly added his persuasion to ours with Mr. Street, will have made a contribution for which they will have earned the gratitude not only of the medical profession, but of all the people.

Announcement of New Departments.

It will be noted that this number of THE MODERN HOSPITAL contains several new departments.

We have been extremely fortunate in securing the active interest and cooperation of some of the strongest men and women, and some of the most efficient agencies engaged in planning and working for the public health.

There is to be a regular department devoted to the prevention and cure of tuberculosis, to be conducted under the auspices of the National Association for the Study and Prevention of Tuberculosis.

Miss Carolyn Conant Van Blarcom, the active head of the Association for the Prevention of Blindness, has undertaken a department to be devoted to that phase of the public health, and her department will also include maternity and midwife work. Miss Van Blarcom gives us her first contribution this month, on the highly important and little understood subject of the evils of wood alcohol.

Dr. Eugene L. Fisk, Director of Hygiene of the Life Extension Institute, will conduct a department for us on the activities incident to the study of means for increasing longevity. His first interesting paper is published elsewhere.

A department will be conducted under the auspices of the New York Association for Improving the Condition of the Poor. There are many bureaus of this most effective body, such as a bureau of Public Health and Hygiene, a department of Social Welfare, a bureau of Educational Nursing, a department of Family Welfare, a bureau of Welfare of School Children—and others. This month the department begins with a most instructive paper by Dr. Donald B. Armstrong, on a "Hospital Home Experiment with Tuberculous Families," and with a paper on "The People's Laundry to Supplement Public Baths," by Holland Hudson.

The Committee on Dispensaries and Out-patient Work of the American Hospital Association will conduct a department along the lines of their activities.

A department of Mental Hygiene and the Institutional Care of Mental Cases will be conducted by Dr. Thomas W. Salmon, Director of the National Committee for Mental Hygiene.

From time to time other departments will be inaugurated under competent auspices, until we are covering effectively all the activities that have to do with the public health.

Miss Jordan's Paper.

Unfortunately Miss Jordan's second paper on the administration of a self-supporting small hospital was late in arriving at the editorial office and at the last moment was crowded out. It will appear in the March number and the series will run without further interruption.

A Unique Christmas Card.

A rather new and certainly unique Christmas card was issued this holiday season just past by Mr. Asa Bacon, superintendent of the Presbyterian Hospital, Chicago. It consisted of a little four-page booklet, with pictures of the hospital and nurses' home on the outside covers, and two pages of artistically paragraphed "maxims" on the inside pages. About one thousand of these Christmas cards were distributed to friends of the hospital and to the "hospital family." Some of the maxims follow:

"There is so much bad in the best of us,
And so much good in the worst of us,
It is hardly fair for any of us
To speak ill of the rest of us."

All make mistakes, some more than others. "To err is human." He succeeds best who makes the fewest mistakes; and most quickly corrects them, when discovered.

Tact is the ability to please rather than offend, by saying or doing the right thing in a pleasant way at the right time, ignoring petty slights and insults and leading disagreeable people to become your friends.

Do your best. Put your best efforts in your work, no matter how simple or difficult the task.

Your faithful service and cooperation adds to the character and individuality of the hospital.

Efficiency is the ability to perform work in the shortest and quickest way, by omitting every useless movement.

Cooperation. "All real progress of the individual, or of society, comes through the joining of hands and working together in a spirit of helpfulness for the common good."

"When wealth is lost, nothing is lost;
When health is lost, something is lost;
When character is lost, all is lost."

Be polite. Help the weak and never by word or act offend another.

"I am passing through this world but once. I will therefore do my best every day, and do all the good to all the people I can."

Stricter control over tuberculosis patients in state sanatoriums to prevent the infection of others was favored in resolutions adopted by the American Sanatorium Association in session at Middleboro, Mass., in December. Another resolution denounced the publication by newspapers of advertisements of patent medicines or quack remedies and devices purported to be beneficial in tuberculosis.

BUILDING THE HOSPITAL—ORGANIZATION AND METHODS.¹

Work of the Building Committee—The Advisory Committee, Its Personnel and Functions—Employment of Architect and Engineer—Their Fees and Functions—Digesting the Plans—Laying Out the Work by Steps.

BY OLIVER H. BARTINE, SUPERINTENDENT THE NEW YORK SOCIETY FOR THE RELIEF OF THE RUPTURED AND CRIPPLED.

Of the vastness of the annual hospital building program little is known even by those actively engaged in hospital work; and no conception of it is grasped by the general public. When we seriously consider that there is annually spent in this country one hundred and twenty-five millions of dollars for the erection and equipment of new hospital buildings in an endeavor to accommodate approximately six hundred thousand additional patients, then the magnitude of the work is forced upon us. We are agreed, I assume, that the demand for hospital treatment is steadily increasing and that it is to the interests of the sick that hospital treatment should become more general.

It is, then, well worth while that we should examine carefully into the general customs connected with the erection of hospital buildings, and determine beyond a doubt whether the maximum of efficiency is being reached or whether there are avoidable wastes, extravagances or shortcomings. For just in proportion as wastes, extravagances or shortcomings prevail the service which should be obtained from the vast expenditure mentioned and the general usefulness of the hospitals are curtailed.

It is common knowledge that much of the money given for charitable or beneficent purposes is lost to the beneficiaries through extravagance and inefficiency in management, but it is the feeling of the writer that this applies with less force to the field of the hospital than to any other branch of charitable work. Nevertheless, in so far as such is the case the resultant suffering falls altogether on the sick, those for whom alone the work is carried on. Their good or ill is in the balance. No work of helpfulness more readily commands our sympathies; therefore shall it not also command the maximum of our skill and efficiency?

Naturally the first step looking toward the erection of a hospital building is the appointment of the building committee. Herein may lie the success or failure of the entire project, therefore the greatest judgment of the board of trustees should be brought to bear upon this most important matter.

The duties of the building committee are vastly diversified and call for rare judgment, experience, skill, patience, and generosity in the giving of time. These duties include the major control of the financial problems, the selection of the architect and the consulting engineer, the choosing of the site and of materials for the building (in consultation with the architect), the letting of the contracts, the procuring of furnishings and supplies, and the solving of a thousand and one knotty problems.

For the successful accomplishment of this work an efficient and thorough organization is absolutely essential. Without it the best final results are impossible.

Whether or no the funds are already available may have a direct bearing upon the selection of members of the building committee. If the money must be raised, one or two members of skill and notable standing in the finan-

cial world are most desirable. If the fund is already available the problem becomes one of hospital building construction and equipment only, and the appointment of the committee is to be determined accordingly.

The building committee should not be large; a large committee always proves unwieldy. It should consist of three or five, or possibly four, members, taken from the board of trustees, preferably all men, and thoroughly familiar with the field of work and methods of the hospital. It is especially to be desired that the membership of the building committee should contain two or more men who have had a broad experience in building operations, and operations of a similar nature. It is also most desirable that one member of the committee should be a lawyer. If he be experienced in or at least familiar with contract law, so much the better.

The building committee having been appointed, it should promptly organize by the election of a chairman and secretary, unless the designation of these officers has been made by the board of trustees. It is recommended that a regular date of meeting be determined upon, either monthly, semi-monthly or weekly, as will best meet the demands of the work. The services of a stenographer, who may also serve as a clerk to the committee, will be found most helpful. Detailed minutes of the meeting can then be made and a copy thereof should be sent after each meeting to each member of the committee for filing and reference.

Inasmuch as this building committee, in reality, simply represents the board of trustees in all its transactions, copies of the minutes of each meeting of the building committee should be properly filed with the secretary of the board of trustees. It is also regarded as essential that at least monthly the meeting of the building committee should be followed by a meeting of the full board of trustees, at which meeting the general plans and work of the building committee and important matters before them could be broadly discussed and helpful advice could be obtained from the other members of the board of trustees. Discussion of details is not contemplated in this recommendation.

The erection and equipment of a hospital building involves a vast number of details which no one or two men can be expected to master unassisted. To obtain the best results and the advantages of the greatest possible amount of experience and information the appointment of an advisory committee or staff, as such, is urgently recommended, this advisory committee to be so constituted as to include men of experience in as nearly as possible all the details or problems involved.

First and foremost the superintendent of the hospital should be a member of this committee.

The surgeon-in-chief, president of the medical board, architect, consulting engineer, builder and operating engineer should constitute the remaining membership of the advisory committee. In the case of certain classes of hospitals, particularly those partaking of the nature of homes, or those especially intended for the service of women, one, or possibly two, women may be included in the membership of this committee, assuming that there are available women acquainted with the work and needs of the hospital. It cannot be denied that the directress of nurses, in many instances, has rendered most valuable help in the building of the newer hospitals; therefore she should also be favorably considered for the membership of this committee.

In mentioning the superintendent of the hospital it is assumed that the building proposed is being erected for an

¹Read before the Hospital Alliance of the City of New York Academy of Medicine, December 1, 1914.

existing institution. If such is not the case the first step of the building committee (or the board of trustees) should be the selection of a superintendent for the new hospital. It is inconceivable that a body of laymen can hope to erect and equip a hospital building without the constant advice, cooperation and coordinating work of an efficient superintendent. No other man can better appreciate the combined administrative, surgical, medical, and general service problems, the needs and idiosyncrasies of patients and staff, the correlation of departments, the essentials and the nonessentials incident to the building, and the very many big and little details which will make or mar the future of the building.

The charge that the superintendent will, if given opportunity, make excessive and extravagant demands for space or equipment is entirely without foundation. The competent superintendent realizes the limitations of available funds quite as well as can any member of the committee, and he is much better able to distinguish between the essential and the nonessential. In any case it is better to risk some slight excess of space or equipment than the omission of some essential feature of the hospital, or a correlation of units or departments so unfortunate that the entire future usefulness of the hospital is limited.

The superintendent should consult with the heads of all the departments of the institution, and in the visitation of other nearby hospitals he should invite them to accompany him. It may not be questioned that these associates will absorb many ideas and that they will thus be able to offer many suggestions to the superintendent, whose duty it is to classify and select those of value, which he should in turn offer to the joint building and advisory committee, including the architect, consulting engineer and builder.

The surgeon-in-chief and the president of the medical board must, of necessity, be most important factors in the work of the committee. No one connected with the institution will understand as will they, the special requirements of their departments and work. They should, however, supplement this understanding with a thorough and elaborate study of the most modern hospitals, equipments and work as illustrated in the newer hospital plans and construction. They should also advise freely with their associates, whose helpful suggestions should be submitted to the superintendent and advisory committee.

Practical experience has demonstrated that it is not feasible to include a greater proportion of the hospital staff in the membership of the advisory committee. Much confusion will be eliminated by requiring the surgeon-in-chief and the president of the medical board to consult with the other members of the staff, sort out and harmonize the conflicting recommendations and present the worthy suggestions in proper form. Many a hospital has suffered irreparably by an attempt on the part of the building committee or architect to provide for a mass of undigested demands. Naturally the final results have been chaotic and most unsatisfactory.

The architect, the consulting engineer, and the builder should also be active members of this advisory committee because they are vastly important factors in the development of the plans and in the construction and equipment of the building. Too often these parties are deemed mere hirelings, viewed with distrust and kept at arm's length. Many an architect and engineer can tell of instances where they have been instructed by the building committee to refrain entirely from consultation with the superintendent of the hospital, its staff, or its operating engineer. They are told that, being employed as experts, such association should be unnecessary and will lead to the adoption of extravagant demands. No wonder that many hospitals are

built with rooms and equipment that will never be required, or are put to later and excessive expense in making changes or adding equipment that should have been originally provided. Cordial cooperation of all those associated in the work may alone be depended upon to assure a complete plant and building.

The architect is a specialist in esthetics, planning and construction, but most certainly he is not a doctor, surgeon, or hospital superintendent, nor is he acquainted with their work. Granting that the particular architect in question has planned one or a dozen hospitals, it does not follow that he knows all about the needs of the new hospital. Most assuredly experience in the design of hospital buildings on the part of the architect is a desirable asset to the new hospital, but it is not an uncommon thing to find that entirely too much responsibility has been placed on the architect, on the theory that as an expert he knows just what is required and what will best meet the requirements, and needs no suggestion or guidance. Such a plan waives entirely the immense amount of valuable information and experience which the superintendent, doctors, and others associated in the hospital have accumulated through years of work and observation in their own and other hospitals.

Within his particular field, the consulting engineer, though he may and should be an engineer experienced in hospital work, should, for reasons similar to those stated in the case of the architect, neither be expected to nor allowed to carry on his work without intimate contact and association with the other members of the advisory committee. Especially should the consulting engineer and operating engineer work in close association and harmony.

The suggestion that the builder should be a member of the advisory committee may seem novel, but there are very good reasons why this should be so. The builder can give the most reliable information concerning the effect of different sites upon the cost of building the hospital, the cost of various materials, and the time required for building; the effect of the selection of different materials upon the time element; and other practical questions. Only a careful selection of the builder by the building committee, acting with the advice of the architect, is necessary to secure reliable, unprejudiced, practical building advice by this means.

The hospital's operating engineer, assuming that the hospital has one, should by all means be a member of this committee. Too much praise cannot be given to the operating engineer of the larger hospitals. His experience in the operation and maintenance of existing equipment and appliances, and in the arrangement of plants will serve as the basis of many suggestions of material help to all concerned.

It is to be most emphatically recommended that when the construction of the building has advanced up to the point of the installation of the mechanical equipment, the operating engineer should be placed upon the work as the hospital's inspector. In this capacity he will be of inestimable help to the owners, architect, consulting engineer, builder and equipment contractors. When the stage is reached where the heating or power plant must be put in operation for drying out the building, or other service, the operating engineer should be placed in charge of the plant. The plant at this time should be operated preferably by the owners, but the same purpose can be accomplished by providing in the specifications that the builder shall employ the hospital's operating engineer for this purpose.

Such a plan assures the best of workmanship and materials in every detail of the mechanical equipment, more positively than can be done by the usual architectural and

engineering supervision, but more important and valuable still, it enables the engineer to become familiar with every detail of the construction and equipment. When the building is completed and occupied he will, beyond question, be able to conduct and maintain the plant to the best advantage and in the most economical manner.

This service on the part of the operating engineer is not intended to supplant, but rather to supplement the work of the clerk of the works or superintendent of construction, who is selected by the architect but employed by the owner at an extra compensation, the duty of the latter being to give his immediate and constant attention to all construction work and the materials and labor employed therein. The operating engineer is rarely capable of supervising the general building construction work, and rarely is the clerk of the works an expert on the installation of the mechanical equipment. Thus the work of one supplements the work of the other.

In some cases it may seem advisable to treat the architect, consulting engineer, builder, and operating engineer as ex-officio members of the advisory committee, but inasmuch as the committee is advisory only this does not seem necessary.

Special meetings of this advisory committee will, without doubt, be required from time to time to thresh out multitudinous minor questions, but in general the meetings of this committee should be held jointly with those of the building committee, the officers of the latter acting as officers of the joint committee. Manifestly special or separate meetings of the building committee will be required, for it is upon the building committee, as the direct representative of the hospital, that falls the responsibility of final arbitration on all questions save only those requiring the action of the board of trustees. Weekly meetings of the joint committee are strongly urged, especially in the early stages of the work. Only thus will delays be avoided and will all necessary information be forthcoming at the proper time.

Consultations of the surgeon-in-chief and president of the medical board with their staffs and with the superintendent should be full and frank, but without too much self-assertiveness and without any self-prejudice, and this attitude should prevail among all of those associated in the work. With all praise to the big, able, and generous men who have given much of their time and of themselves to the work of hospital construction, it is a fact that many hospitals have been erected which have been the subject of serious and just criticism because someone of unusual force, of strong position or apparent authority, whose judgment the other members of the committee feared to question, has been permitted to impress his biased recommendations or views upon the work of the committee. In such cases the hospital and its patients are the chief sufferers, and the staff of the hospital is called upon to offer many apologies.

Plans of the proposed hospital, from the earliest stage of sketches to final construction plans, should at all times be kept on file at the office of the superintendent where all members of the hospital staff may consult them. It should be made known to the staff that these plans were there for this purpose and that suggestions relating thereto on the part of the staff should be made to the surgeon-in-chief, to the president of the medical board, or to the superintendent, as the case might be; in other words, to the head of the department in which originated the suggestion.

No more important duties fall within the province of the building committee than the selection of the architect,

consulting engineer, and builder. The committee should make the most careful studies and investigations and select those best qualified by experience to carry out the work. This selection should be made without the influence of friendship, mere acquaintance or prejudice such as all too often prove to be the determining factors.

Frequently the selection of the architect and consulting engineer is determined upon the basis of the fee charged, and the man chosen is one who asks a fee less than the usual rate, or less than that charged by the best architects and engineers. Could anything be more absurd? As reasonably might we select our doctors or lawyers upon the same basis. It is recognized that there is ample justification for the demand of a higher fee by one doctor or one lawyer than another. Ability is just as variable and just as desirable, nay, essential, in the architect and engineer as in the doctor and lawyer.

The architect should be selected because of his ability, character, experience and organization, his willingness to cooperate with the building and advisory committees, his demonstrated capacity for planning and building conveniently, efficiently, and economically. The architect who is extravagant in his ideas and in his selection of materials should be avoided, as should the architect who is lacking in experience or organization, because he will probably involve the hospital in unexpected expense before the building is built and equipped.

The committee should investigate the previous work of the architect, consider and study its character, completeness and relative cost.

The selection of an architect for a hospital by means of an architectural competition is the least desirable method that can be suggested. In such a case, however, the competition should be conducted according to the rules of the American Institute of Architects and should be confined to architects of sufficient experience in hospital construction.

In general, the remarks made concerning the selection and employment of the architect apply with equal force to the matter of the selection of the consulting engineer. To many, however, the necessity of the employment of a consulting engineer is less appreciated, but it is none the less real. The architect deals with the plan and scope of the building and with all of its esthetic requirements, while the engineer deals with the mechanical or engineering equipment. The first provides the building and the second provides that which makes it habitable, workable, convenient, and useful. The one handles an architectural problem and the other an engineering problem. And the two lines of work involve essentially different temperaments, education, training, and experience. No one man can accomplish both successfully. Very few architects, probably not more than a dozen in the country, employ mechanical or sanitary engineers in their offices.

The consulting engineer should be well informed and thoroughly experienced in hospital work and have an organization capable of successfully carrying on the work.

Just a word regarding the relations and fees of the architect and engineer. The schedule of charges of the American Institute of Architects provides for a payment to the architect of six percent on the cost of the entire work and an additional payment to cover the cost of the consulting engineer's fees, where required; but it does not state the amount of the extra payment or where it is required. The usual engineer's fee is the same as the architect's, but it is based upon the cost of the mechanical equipment only.

The question will arise whether the architect is to be

paid his fee on the entire cost of the building, including the equipment upon which the engineer is paid his fee. The architect must so arrange his plans as to provide spaces as required by the engineer for coal, boilers, auxiliary apparatus, ventilating and heating apparatus, ducts, plumbing fixtures and piping, electric plant and equipment, refrigerating apparatus, elevators, vacuum cleaning plant, laundry and kitchen equipment, etc. It is also principally the duty of the architect to see that the building and its equipment properly come together, both during construction and upon the completion of the building. To a large extent also the architect acts as executive in such matters as rendering certificates of payments to all contractors, keeping the records of all contracts, and the like. All of this involves much time and expense to the architect. At the same time he is not called upon for this professional knowledge and experience and he is relieved of the expense of making the plans and specifications for the mechanical equipment and the supervision of its installation. A recognition of these facts has led to the frequent and successful adoption of a plan whereby the architect is paid six percent on the cost of the building without equipment and three percent extra on the cost of the mechanical equipment, while the engineer is paid six percent upon the cost of the mechanical equipment only. While this involves the payment of an extra three percent on the cost of the mechanical equipment it involves but a very small percentage of the total cost of the hospital, usually about one-half of one percent; and the great advantages obtained by the employment of the consulting engineer certainly warrant this expenditure. In the first cost of installation, quality considered, and in the reduced annual cost of maintenance and operation this small extra expenditure will be saved over and over.

To the engineer should be entrusted the design and supervision of the entire mechanical equipment, including the power plant, heating and ventilating plant, lighting and other electrical equipment, plumbing, elevators, refrigeration, vacuum cleaning, incinerators, and laundry and kitchen equipment. These are all parts of the mechanical equipment.

The plan of utilizing manufacturer's or contractor's plans and specifications for heating and ventilating, plumbing, lighting fixtures, elevators, laundry and kitchen equipment—as is frequently done by hospitals and architects—cannot be too strongly condemned. Many hospitals have, because of so doing, paid vastly too much for these equipments, and they have had foisted upon them apparatus which signally failed to meet the needs of the hospital, and other apparatus for which no possible use could be found. These are engineering problems and should be left to the consulting engineer, and they should be solved without the prejudicial influence of contractors or manufacturers, who manifestly have selfish or personal ends to serve.

The selection of the builder is a most important matter. A poor builder means a poor hospital, and the best of committees or architects cannot alter this fact. Delays, annoyances, and poor work will prevail throughout. Experience in hospital construction on the part of the builder is desirable.

The selection of the builder by means of competitive bidding is not the only possible method, nor is it the best. By this method the service of a builder is not available in the early stages when such services are very valuable. The "cost plus percentage" method of employing the builder has many advantages which should be thoroughly investigated by the building committee. Under this plan, the builder, who should be selected at the outset, guarantees

that the cost of the hospital of a certain size shall not exceed a certain sum, and he is paid a certain percentage, usually five to seven percent, upon the actual cost. This plan eliminates vexatious problems, such as extras, and makes the builder, from the first, a confidential associate of the committee rather than an antagonist or mere hireling.

Allied with the problem of selecting the builder is the problem of selecting subcontractors and equipment contractors. It is believed that such work as the heating and ventilating, plumbing, and electrical work can best be let as separate contracts. This subject of contracts, however, is too large to be treated in this paper.

With an organization such as is above outlined, cordially working in harmony, the success of the venture is assured and the ways are prepared for real progress.

Immediately upon the formation of the joint committee a careful and expansive survey should be undertaken of the field and work of the new hospital and of the exact nature of the service to be demanded of the building and of its needs in detail. This should include a study of the class or classes of patients to be served, of the probable number of private rooms or ward patients for which provision must be made, and of the requirements of the surgical, administrative, mechanical and other departments. Every need should be considered.

In the meantime visitations to other hospitals of a similar nature should be made extensively, and the needs, method, construction, and equipment of the most modern hospital work and construction should be studied intensively so as to obtain the most practical and ideal results. In these visits and studies all members of the building and advisory committees should take part. Cooperation in this work will surely bring wonderful results.

In these visits, materials, equipment, and methods should be the chief points of study. With these investigations as a basis the committee will be in a splendid position to consider methods, and especially materials, for the new building. Concerning the latter, emphasis should be laid upon the fact that the use of cheap materials involves always high maintenance cost and often irremediable dissatisfaction. Extreme care should be exercised that only those materials should be used which will exactly fulfill all requirements and prove durable. This should apply to every detail of the building and its equipment. Better sacrifice in amount than in quality.

At the beginning of the work of the committee a program or plan of steps in the work should be outlined. First in this plan would be the study or survey of the work and needs of a hospital, followed by the visits to other hospitals, the selection of a site (unless this be already available), the lay-out of the plot, including the arrangement of the building or buildings, the orientation of the building, study of water supply, sewage disposal, gas and electric service and telephone service, foundation problems, structural, exterior and interior materials, and so on into the many details involved.

A thorough study of all of these problems lays the best possible groundwork for the preparation of the plans. The architect should then be called upon to prepare tentative sketches of the building, embracing the features determined upon by the building committee after conference with the advisory committee. These sketches should be presented to the joint committee as a basis for discussion. Multiple copies should be available so that each member of the committee may have a separate copy. The surgeon-in-chief, the president of the medical board, and the superintendent should take their copies of the sketches to their associates in the work of the hospital and confer with them.

Thus many helpful suggestions may be secured. Such suggestions should, however, be considered with the superintendent before being presented to the committee.

After a reasonable time the committee should again meet and a general discussion should be had. Such modifications in the sketches as may be agreed upon by the joint committee and approved by the building committee should be made by the architect. Revised sketches should then be submitted to the joint committee. In this work the consulting engineer should cooperate with the architect. When the plans have been put into the form best meeting the views of the joint committee and are approved by the building committee the latter should authorize the architect and engineer to prepare working drawings for the construction of the hospital in accordance with the approved sketches. During the progress of this work many problems will arise which should be brought to the attention of the joint committee. Minor modifications of the plans may be deemed advisable from time to time, but if the preliminary work has been well done these changes will be slight.

When the architect's and engineer's working drawings are presented to the committee they should be carefully scrutinized to see that the details previously agreed upon have been embodied and that a successful arrangement of them has been made. If so, these plans should be accepted and adopted; and after this date only the most urgent reason should lead to a departure from these plans. The architect and engineer will then prepare specifications and all is ready for actual construction to begin.

In the above little has been said concerning matters financial. It has been assumed that funds are available. If not, a separate problem is placed before the building committee. The subject is one for special treatment.

If funds are available it is perfectly possible to determine just how large a building may be built with the funds available. If funds must be raised the size of the building should be determined, from which the cost may be obtained.

The cost of hospital buildings per cubic foot of space should be the governing factor in determining the size and character of the building to be built.

By a proper selection of the particular hospitals which in character and materials used, nearest correspond with the proposed hospital, and the use of careful judgment a correct unit cost may be determined, thus the size of the building which can be built for the funds at hand or the cost of a building of a certain size may be determined. This data should be checked with the builder's estimates.

If a plan such as has been outlined above were applied to state, municipal, and other public buildings it would not so often become necessary to rearrange or reconstruct new buildings in order that they may efficiently serve the purpose intended. Many hospital buildings when completed are not adapted for the purposes for which they were designed. In many cases the money is not available for alterations and it becomes necessary to carry on the work under disadvantages to the patients, the medical staff, and others interested in the work. Large sums are annually expended in alterations in new buildings, and much of this money could be saved by careful study and planning.

The committee should endeavor to build the best possible building within their means and to obtain the best materials and equipment at a minimum of cost. A very grave mistake is made by many boards in attempting to build a million-dollar building for \$750,000.00, or at that ratio. A hundred percent perfect building cannot be built for a seventy-five percent appropriation. An attempt to do so only means difficulty for the committee, architect, engineer,

and builder, as well as for the hospital staff, who, with the patients, suffer the most in the end. Rather than make the serious mistake of attempting such a saving in construction cost it is urged that a building be undertaken which can be built within the available funds, using the best of materials and equipment, and that it be so done that it can be later added to as funds become available.

The increased interest of recent years manifested in this work by members of the Hospital Alliance, American Hospital Association, and by hospital trustees, architects, engineers, builders, and various hospital journals, has been a great factor in the advancement of hospital construction and equipment.

WHAT HOSPITALS CAN DO IN PREVENTIVE MEDICINE.¹

Report of Committee Appointed to Determine How Far Hospitals Should Go—How Their Preventive Work Can Best Be Done—What Relations Hospital Work Should Bear Toward the Work of Other Agencies.

The committee consisting of Dr. W. L. Babcock, Mr. Sidney Goldstein, Miss Charlotte Aikens, Mr. Michael M. Davis, Jr., and Dr. John A. Hornsby, chairman, was appointed at the Boston meeting under the following resolution introduced by Dr. Goldwater:

"Resolved, that a committee of five be appointed by the president to study the character, cost, and value of direct and indirect work for the prevention of disease, now conducted by hospitals and dispensaries, to arrange in the order of their importance and practicability successive steps for the extension of such work and to prepare methods for its financial support for its correlation with similar work of other agencies, public and private."

REPORT OF THE COMMITTEE.

The resolution creating this committee touched on a number of points in a very broad field. The committee intends to pursue the matter during the coming year and presents the following only as a preliminary:

We have confined this report to a single question, "What practical steps should a hospital now take for doing preventive work?" "What are the obligations of the hospital in the direction of preventive medicine?"

The trend of modern medicine is strongly in the direction of prevention, and the hospital, reflecting as it does the progress of medicine, must follow this trend. A hospital is not fulfilling its duty to its patients unless it combines with the curative work of its wards sufficient preventive work of a clinical nature to minimize the chance of recurrence of disease. A large proportion of patients are able to leave the ward when they are not able to return to work or to family life without endangering their return to health. If the patient is from a well-to-do home, the family and the family physician provide this after-care. If the patient is not from such a home, the hospital must provide it or else fail to do a thorough job for that patient.

How shall the hospital provide this after-care as a part of the required preventive work? In three ways:

1. Through the out-patient department.
2. Through a convalescent home.
3. Through a social service department working in co-operation with other medical, charitable, and educational agencies in the community.

¹Read at the sixteenth annual conference of the American Hospital Association, St. Paul, August 25-28, 1914.

At this point we may divide hospitals into three classes:

A. The large general hospital in the large city.

B. The small semi-private or special hospital in the large city.

C. The hospital of small or moderate size in the small city or town.

A. Large general hospitals in large communities have, in many cases, out-patient departments. Every such hospital needs one. The out-patient departments that now exist are often not systematically used as a means of follow-up work for patients discharged from the wards. One frequent defect is that out-patient clinics are overcrowded; another is loose organization. The out-patient department should be medically organized in the most intimate relation with the hospital, and should be under the personal administrative supervision of one of the assistant superintendents.

Every large hospital needs a convalescent home, or access to such a home or homes supported by their agencies. A convalescent home is a direct financial as well as a medical economy to a hospital.

Every hospital in this class needs a social service department. Proper after-care cannot be provided without the aid of such a department. Through the same means the assistance of charitable agencies is secured for patients or families who need such aid. It is most important that, in establishing social service, a properly trained worker be secured. Adequate salaries must be paid. On the other hand, social service is generally found to awaken new interest in the hospital and to attract financial support more readily.

The work of the social service department should be planned so as not to duplicate the work of charity organizations and municipal departments already covering their special fields. The cooperation and assistance of these organizations and departments should be enlisted, wherever possible, in the preventive work of the hospital. The social service department is the chief agent through which this outside cooperation is practically secured.

B. The small or special hospital in the large city needs no less to do preventive work than the large institution, so far as it receives the same social class of patients. It will sometimes be possible for such hospitals to use the out-patient departments of other institutions. The extent to which such hospitals need to have their own out-patient departments and their own social service departments, in order to meet their responsibilities for preventive work, should be seriously studied by each hospital for itself.

C. Special attention should be directed to the problem of preventive work in the hospitals located in the smaller communities. In recent years a certain number have established out-patient departments, but as yet the large majority have none. We believe that every hospital of this class needs an out-patient department, if only to give after-care to its discharged patients. By giving medical supervision and care to patients after they have left the wards, earlier discharge is promoted, economy of hospital service is effected, important preventive work can be done, and the hospital is kept better informed of the results of its ward work. As many of the smaller communities are less well provided with charitable societies than are the large cities, it is of special importance that hospitals in the smaller places should have a social service department. A hospital thus equipped with a dispensary and with social service can be a very large factor in preventing disease and improving health conditions in its city or town.

It would doubtless be well if every hospital in a city or

town of moderate size should appoint a committee on preventive work, with the aim of studying what is needed, and what the hospital should do, and of presenting a report thereon to the responsible authorities of the hospital.

There are certain forms of preventive work of a clinical nature which have been tested out at a number of hospitals and proven so successful that the committee believes they should be called to attention at this time.

1. The hospital can cooperate with the medical inspection of school children. In all cities and towns where this inspection has been established a large number of diseases and correctible physical defects are found among children whose parents cannot pay for the medical services needed. Much of this work requires the services of a specialist. It is largely with ambulatory cases. The hospital, through its out-patient department, and to some extent through the wards, can perform an invaluable service for the children of its community. This is an additional reason why the out-patient department is needed in hospitals in both large and small communities.

2. The hospital can maintain a dental clinic for school children. Ninety percent or more of school children need dental service, the supply of which is everywhere inadequate. A dental clinic can do an enormous amount of good in prophylactic as well as remedial work. Nominal fees can be charged to most patients which will cover the cost of the materials used.

3. An out-patient clinic for eye diseases and for providing eye-glasses is another general need. The work of such a clinic is again largely with children of school age. To make the clinic effective, the hospital should retain control of the optician's part of the work.

4. Remarkable results have been accomplished in some hospitals in orthopedic work through classes for children in corrective gymnastics. The hospitals in which orthopedic service is established should look into the valuable curative and preventive measures of this work. In connection with any orthopedic service, the establishment of a shop for making braces and other orthopedic appliances should be considered. Such a shop can be placed at the service of the community in general, as well as the hospital's own medical staff, and can be made self-supporting.

5. A hospital treating in wards or as out-patients any number of babies should establish a preventive clinic at which mothers receive advice and instruction in the feeding and care of their babies, and at which milk is provided for those who cannot be breast-fed. Such preventive clinics are now successfully maintained in many cities and towns, and a national association for the study and prevention of infant mortality has been organized for the purpose of assisting individuals or institutions who desire to extend such work.

6. Finally, we should bear in mind the use of literature as a means of educational and preventive work along health lines. The hospital may well be a center from which will be distributed printed information concerning diseases, such as tuberculosis, typhoid, or instructing in hygiene. A large number of leaflets and pamphlets have been prepared by public and private agencies for such use. It should, however, be borne in mind that merely to hand out literature does not usually amount to much practical service.

In conclusion, the committee on preventive work wishes to emphasize the importance of this subject. Public interest and financial support is flowing so markedly in the direction of prevention that the hospitals may wisely give serious attention to their responsibilities in this matter.

OLD BLOCKLEY UNDER THE KNIFE.

Only a Capital Operation by a Trained Specialist Will Cure The Ills From Which the Famous Institution Is Suffering.

BY RICHARD WATERMAN, SECRETARY OF THE COMMITTEE ON HOSPITAL EFFICIENCY OF PHILADELPHIA.

The recent discussion of "Plans for the New Philadelphia General Hospital" before the members of the City Club of Philadelphia and their guests, made it perfectly clear that nothing short of a capital operation will accomplish the purpose which was defined by all of the speakers, including Director Richard H. Harte of the Department of Public Health and Charities, Commissioner S. S. Goldwater of the Department of Health of New York City, Dr. David Riesman, Dr. W. Duffield Robinson, Dr. D. J. McCarthy, and Dr. Joseph S. Neff.

In his address, Dr. Harte referred to his plans for the new Philadelphia General Hospital as "a half-baked proposition" because he was conscious that he has had neither the time nor the special training that would enable him to make the plans himself. He is not a hospital administrator, nor a hospital consultant, nor a hospital architect—he is an eminent surgeon. In planning the Philadelphia General Hospital he must have the assistance of someone whose training has fitted him to show the people of Philadelphia how they can get full value for the \$6,000,000 which they will expend for the construction and equipment of the new hospital buildings; and how they can get full value in the future for the large sum—probably \$750,000 a year—which they will expend for maintenance. The number of men in the United States who are competent to do this could probably be counted on the fingers of one hand, or surely on the fingers of both.

The city should employ a competent hospital consultant to make a careful study of the entire situation and advise Director Harte and city councils in regard to certain fundamental questions.

Should the new hospital provide chiefly for chronic cases, as does the Philadelphia General Hospital at the present time, or should it receive only acute cases and send chronic patients to other institutions erected especially for that purpose? Is it wise to erect a hospital having a capacity of two thousand beds, or should this capacity be divided between two or more institutions located in different parts of the city? Is it possible to make the administration of a two-thousand-bed institution efficient? Is the site that has been chosen so located that each of the great medical schools in Philadelphia will have the same opportunity to help make the new Blockley a great teaching hospital that will be an important factor in restoring Philadelphia to her former position as the leading medical center in the United States? Is the proposed plan for the arrangement of the building so carefully considered that there will be no unnecessary waste of labor, of materials, or of money, in the operation of the hospital?

These and many other questions are of fundamental importance in the development of the plans for the new hospital buildings. They must be settled before it will be possible for the architect to commence his work. They cannot be settled by the expression of an off-hand opinion, but will require months of study by the most competent expert whose services can be obtained.

It might cost the city of Philadelphia \$20,000 or \$30,000 to employ a hospital consultant to supervise the preparation of the new hospital plans, but in the opinion of the best experts in the country it is certain that the

expenditure of this money will reduce the annual cost of maintaining the hospital by at least four or five times this amount.

The plan of operation for the new institution should be worked out in advance with great care, in order to determine how much space will be needed for each department; how this space should be distributed; and what should be the relative location of the various departments. Then the architect should be asked to incorporate this plan of operation in an architectural plan for the new buildings. This is the method by which the people of Philadelphia can be assured of obtaining the best possible results in return for the large amount of money which they will expend every year for generations to come in maintaining the new institution after it is completed.

The great work that Dr. Harte can do is to secure the adoption by councils of the plans when they are made. He said at the City Club meeting that there has been no political interference with the conduct of the Department of Health under his administration; and that no reasonable request of his has been refused by councils. This situation constitutes Dr. Harte's great opportunity, since political interference is the rock on which nearly every plan heretofore proposed in this country for a great municipal hospital has been irretrievably wrecked.

Dr. Harte has visited the new Cincinnati General Hospital and he knows that as a result of political interference that hospital has cost for construction and equipment nearly \$7,000 a bed—nearly three times as much as it should have cost—and that according to the best expert opinion it will cost each year for maintenance from 50 to 60 percent more than is necessary. He has visited the new buildings of the Cook County Hospital in Chicago, which have a capacity of one thousand beds, and he knows that in that institution politics has been allowed to interfere so seriously that, although the commissioners employed one of the best hospital consultants in the United States, they have rejected his advice at so many points that the new hospital already ranks as a \$4,000,000 monument to inefficiency. Dr. Harte is anxious to avoid having a similar experience in Philadelphia.

If a physician finds that one of his patients whom he is treating for some of the ordinary ills of life develops a complication that requires surgical interference, the first thing he does is to call in Dr. Harte or some other eminent specialist who is skilled in the diagnosis and treatment of surgical difficulties. He feels that he is entitled to the best expert assistance in such an emergency, and that the family of the patient will expect him to obtain it.

It is equally true that Director Harte and the members of councils are entitled to the best expert assistance in the diagnosis and treatment of the ills from which Blockley is suffering at the present time; and that the family—i. e., the people of Philadelphia—will expect them to obtain it.

Dr. Charles P. Bancroft, for thirty-eight years superintendent of the state hospital for the insane, at Concord, N. H., retired Dec. 31. Dr. Bancroft succeeded his father, who held the position nineteen years. Dr. Charles H. Dolloff, an assistant at the hospital, was chosen to fill the vacancy temporarily. It is reported that Dr. Edgar O. Crossman, of Lisbon, formerly internal revenue collector at Portsmouth, will be named as permanent superintendent.

Dr. L. R. Sellers, formerly second assistant physician at the Osawatimie (Kas.) State Hospital, is now in charge of the Kansas State Hospital at Larned, Dr. B. F. Hawks having resigned as superintendent of the Larned institution.

CURRENT HOSPITAL LITERATURE

Albert Allemann, M. D., Foreign Literature.
Army Medical Museum and Library, Office of the Surgeon-General
U. S. Army.

Frank B. Martin, Domestic Literature.
Army Medical Museum and Library, Office of the Surgeon-General
U. S. Army.

The Need of More State Hospitals for the Insane. J. Allen Jackson. N. York M. J. (etc.), New York, 1914, C., 1013.

The author has made a study of conditions existing in the southeastern district of Pennsylvania. The State Hospital at Norristown and the Philadelphia Hospital for the Insane are selected as examples of institutions caring for patients far in excess of their capacity.

The Reserve Hospital in Siegen (Das Reserve-Lazarett in Siegen). Stalz, Archit. Gesundheit, Leipzig, 1914, XXXIX, No. 21.

How a suitable building may be changed, if necessity demands it, in a practical manner into a hospital is shown by the temporary military hospital in Siegen. In this city a great concert hall was converted into a military hospital under the direction of Dr. Hensgen. The beds, ninety-four in number, are placed in the hall and on the gallery. The stage, which is separated from the hall by an iron curtain, is used for storing the uniforms and other belongings of the soldiers. In the second story are the rooms for the nurses and the operation room. In the basement, water closets and bathing rooms have been built in. The basement contains also the heating plant, store-rooms, etc.

How May the Best Results Be Obtained in Case of Incurable Consumptives Where There Are no Hospitals? Am. J. Pub. Health, 1914, IV, No. 12.

This is a discussion opened by Dr. E. O. Otis, of Boston, in which it was contended that the consumptive does not become a menace to society if he is careful in disposing of his sputum. A great deal can be done with the incurable consumptive by careful supervision, education, and training. The problem of the incurable consumptive, whether in the small town or the city, can only be definitely solved by a special law empowering the board of health to remove the offending person to a consumptive hospital, and by providing such a hospital for cases of this class. Furthermore, the public must be taught that a consumptive who properly disposes of his sputum is not a menace.

The Hospitalization of the Tuberculous (Per la spedalizzazione die tubercolosi). V. Luigioni. Ospedale Maggiore, Milano, 1914, II, No. 8.

In 1907 there were in Italy only twelve special hospitals for tuberculous patients. In Milan patients with pulmonary tuberculosis were placed, as late as 1911, together with the other patients in the Ospedale Maggiore. But, as the danger of infection for the other patients and the nurses made itself felt more and more, the board of hospitals of the city of Milan decided that patients with pul-

monary tuberculosis cannot be received any longer at the Ospedale Maggiore. A division for tuberculosis patients was established at the branch hospital at Cernusco, and a new building for tuberculous patients of the city of Milano was erected at the Cicero branch hospital.

Hoog-Blaricum, the Amsterdam Sanatorium for Children. F. L. Deterding. Het Zuikenhuis, Amsterdam, 1914, V, No. 8.

This institution was established by the city of Amsterdam and opened in 1912. It is situated on a small elevation, in very healthful and beautiful surroundings, about 16 miles southeast of Amsterdam. The sanatorium is built in the old Dutch style. The buildings contain only one story, and are covered with enormously high and steep roofs. The sanatorium consists of one large rectangular central building. From each of the four corners extends a large wing obliquely, so that the ground plan presents the picture of two Y's whose stems meet and form the central building (> <). The institution is surrounded by beautiful parks and woodlands.

The Number of Physicians and Nurses in the Public and Private Hospitals for Mental Diseases as Compared With the Number of Patients (Ueber das numerische Verhältnis der Aerzte und Pflegepersonen in den öffentlichen und privaten Heil- und Pflegeanstalten für Geisteskrankhe zur Anzahl der Kranken). Dr. H. Schloss. Allgem. Zeitschr. f. Psychiat., Berlin, 1914, LXXI, No. 6.

The author has made an inquiry among the hospitals for mental diseases in the various countries regarding the number of physicians and nurses as compared with the number of patients and has obtained the following results: In German institutions there are 112 patients to every physician, in Austria 115, in Switzerland 116, in Italy 124, in France 225, in the United States 275, in Great Britain 278. As to the number of nurses the results are as follows: In Germany there are 5.91 patients to each nurse, in Austria 6.46, in Switzerland 6.82, in Great Britain 9.48 and in France 10.22. The relative number of nurses in American institutions could not be ascertained.

A Simple System of Ventilation (Einfache Lüftung). R. Schippel. Heilanstalt, Leipzig, 1914, IX, No. 21.

Pressure ventilation is a system of aeration that has stood the test. It consists of a system of tubes, in which the air is forced into the rooms by a ventilator mechanically set in motion. As in this system apparatus can be inserted for cooling or heating the steadily streaming air, its hygienic results are very satisfactory. The chief reason why this system has not been more frequently introduced in hospitals is the fact that the mechanical power was lacking to set the ventilator in motion. This want has now been filled by the general introduction of electricity. In a large hospital of several stories, the ventilation apparatus is usually placed in the upper part of the building, and, if possible, in a well lighted space. The apparatus consists of a ventilator set in motion by an electromotor and provided with a mixing valve. According to the adjustment of the valve the ventilator draws fresh air from the tube coming from above, which is provided with a cooling apparatus, or from the tube coming from below, which is provided with a heating apparatus. The air, whose temperature is regulated at about 15° C., flows through a dampening space, in which, according to necessity, humidity is added to or withdrawn from the streaming air. A slight escape of air behind the dampening apparatus indicates on a polymeter the quality of the passing air. In clean metal tubes the air flows to the various rooms. On account of the rapid downward flow of

the air it is impossible for dirt to collect in the tubes. The escape of the air from the rooms takes place as usual through valves in the windows or through air shafts. The article is accompanied by two diagrams.

Notes on the Organization and Management of Military Hospitals in the Home Territory (Einiges über die Organisation und den Betrieb der Kriegslazarette im Heimatgebiet). Heilanstalt, Leipzig, 1914, IX, No. 21.

After mobilization the existing military hospitals are called "reserve hospitals." As these hospitals are not sufficient for the great demands in time of war, the administration of each army corps has already selected in peace time suitable buildings to be used as reserve hospitals. These reserve hospitals are under the direction of a chief surgeon, or, if such an officer is not available, under a civilian physician. As the soldiers of the hospital corps are needed in the field, civilian nurses are employed. If several reserve hospitals are established in one city, one director takes charge of all to secure a uniform management. Besides the reserve hospitals the existing association hospitals and sanatoriums also receive wounded soldiers, but such hospitals must have not less than twenty beds. These are under the management of a medical director who stands under the chief surgeon of the respective army corps.

Vera Cruz Hospital and Red Cross Relief Work. The Survey, November 9, 1914.

With the withdrawal of American military forces from Vera Cruz, Mr. Charles Jenkinson, director of the Atlantic Division of the American Red Cross, finds the opportunity to review some of the social consequences of the occupation to the native population of about 35,000 people. In the *Survey* of November 9 he shows that the American Red Cross maintained headquarters and carried on the relief work from ten days after occupation of the port to September 2; that, besides the care of families left destitute by the panic-stricken federal soldiers, the Mexican dead and wounded left behind by the federal army as they evacuated the fort became the care of the American military and naval hospitals. The American soldiers were called on to bury the dead. The Mexican Neutral White Cross, a private and unofficial relief organization, cared for a few of the wounded Mexican soldiers in its small hospital relief station, one that had been maintained for some time in Vera Cruz. Private hospitals cared for a few more. Some Spaniards wounded during American occupation were cared for by the American military hospital and by a Spanish benevolent organization. Our own soldiers were transferred promptly to the hospital ship *Solace* and to naval hospitals in the United States.

The Physician's Liability for Negligence of the Hospital Nurse. Med. Rec., N. Y., 1915, LXXXVII, No. 1.

Action was brought against the plaintiff's family physician, by whose advice she went to a public hospital for a surgical operation. After the operation she was burned by a hot-water bottle that had been left by a hospital nurse in the bed in which she was placed.

It appeared from the testimony that while the defendant was a member of the hospital staff, and had recommended the hospital and had agreed to perform the operation for a stipulated sum, the hospital expenses were to be paid by the plaintiff. That she was operated upon by the chief hospital surgeon, assisted by the defendant; that the defendant followed the nurses and the etherizer into the recovery room, and stood near the foot of the bed when the plaintiff was placed in it; that in the operating room the nurses were in charge of the surgeons, but in the re-

covery room they were under direct, immediate, and exclusive control of the directress, which was a general rule in hospitals. It was held that the injury was caused by the negligence of a hospital nurse for whose service the plaintiff paid the hospital and whose work the defendant would not have been permitted to supervise and for whose negligence he was not responsible. *Stewart vs. Manasses*, Pennsylvania Supreme Court, 90 Atl. 574.

St. Agnes Hospital. H. A. Royster, J. Nat. Med. Ass., Nashville, 1914, VI, 221.

St. Agnes Hospital, a department of the St. Augustine school was originally intended to give instruction to young women nurses. From such a beginning the hospital has developed into a fifty-bed institution for colored patients. The building was constructed from stone quarried on the premises, and the structure was erected by students of the masonry class of the St. Augustine school. The hospital's success is the result of the devotion and zeal of its founders and the development of an efficient system under a restricted staff. The author reaches two conclusions: that the separation of services into three main divisions with a general supervision, but with personal responsibility, produces marked efficiency with a minimum outlay; and further that negro patients are afforded the maximum of comfort and results in hospitals intended exclusively for themselves, and conducted under competent and reliable management. The former aversion of the negro to surgical treatment has almost disappeared. With the spread of the hospital idea in the community the horror of going to such institutions has lessened remarkably, and patients are applying earlier for surgical relief. As a consequence the mortality rate has been greatly lowered. The author takes issue with the claim that the negro is immune from diseases common to the white race, and concludes an interesting paper with a table of operations at St. Agnes Hospital.

Relation of Physical Therapy to the Hospital Patient. W. L. Bierring, J. Am. M. Assn., Chicago, Nov. 14, 1914.

The author contends that only a small proportion of patients entering a hospital will prove to need physical methods of treatment; the hospital should be equipped and prepared to meet the demands of this kind. That the best forms of physical therapy are not always the most elaborate and costly; often valuable work can be done with improvised apparatus when utilized with good sense. With an annual increase averaging 300 patients, and the annual admissions exceeding 1,700 patients, the necessity arises for fifty percent of these admissions to be actually under treatment in already overcrowded institutions. Authorities in scientific treatment of mental diseases realize the folly of attempting the best method of treatment for the patient acutely ill mentally, when necessity places the acute cases side by side with those of the chronic type. This class of patients can receive better treatment in a psychopathic hospital. There can be no more crying need than that for state psychopathic hospitals. The treatment of the mild, chronic insane by the colony plan becomes one of the most interesting fields in the subject of psychiatry. Such a plan embraces an economical method of giving the patient exercise, freedom, and good physical health, making him at the same time partially self-supporting. A most satisfactory, efficient, and economical plan would be to establish colonies or villages near, and under the supervision of, each state hospital. To overcome conditions in Pennsylvania the state should assume entire charge of its insane. The scope of the work of the committee on lunacy should be broadened and the committee should be vested

with more authority. Plans for the construction of new hospitals should be standard and uniform. The erection of an additional hospital in each of the Southeastern and Southwestern districts, the establishment of psychopathic hospitals with out-patient departments, and laboratories and farm colonies available for chronic cases, are to be included in a program for state care of the insane.

Tuberculosis and Sanatoriums for the People; Mortality from Tuberculosis in France; Distant Results of the German, Swiss and French Sanatoriums for the People (*Tuberculose et sanatoriums populaires; mortalité par tuberculose en France; résultats éloignés des sanatoriums populaires allemands, suisses et français*). Dr. G. Artaud. Archives gén. de médecine, Paris, 1914, XCIII, July number.

France has only ten tuberculosis sanatoriums for the people with 908 beds in all, while Switzerland with a ten times smaller population possesses twelve such institutions with 923 beds, and Germany, the pioneer country for the sanatorium treatment of tuberculosis, has 104 tuberculosis sanatoriums with 12,146 beds. In 1907 32,073 patients were treated in the German sanatoriums; of these 26,287 left the institutions and were able to go to work. In 1912 46 percent of this number were still able to provide for themselves and their families.

The author considers it the duty of the state to take up the struggle against tuberculosis and to establish in each district a tuberculosis dispensary; and in each of the 85 departments of France to establish a sanatorium for the people. Not only indigent patients should be received in these institutions, but needy patients of the middle classes should also be assisted, as is the case in Germany and Switzerland. To obtain lasting results the average duration of a cure should be fixed at six months. At the present time 50 to 75 percent of all patients can be cured in about six months in a well managed sanatorium if they are treated as soon as the first signs of tuberculosis appear. With 85 sanatoriums France will be able to treat 20,000 patients and save at least 10,000 human lives every year.

The Social Position of Physicians in Hospitals for the Insane (*Die soziale Stellung des Anstaltsarztes*). Dr. van Deventer. Allgem. Zeitschr. f. Psychiat., Berlin, 1914, LXXI, No. 6.

The conception of mental disease has in modern times been greatly widened and enlarged. It does not only comprise the insane, but also the psychopathic, the senile, the feeble-minded children, the idiots, the epileptics, the alcoholics, etc. A great field has thus been opened up for the psychiatrist outside the hospital. Psychiatrists who once used to belong to the hospital staff of institutions for the insane now consider the hospital frequently as a stepping stone, as a practical school for specialists in this field. Their number grows constantly and the hospital service loses thus many excellent men. The field of the hospital physician has also been greatly enlarged. The extensive special knowledge which he must possess, has so much increased that a division of labor has become necessary. The medical director must be a many-sided man, he must possess the talent of organization, he must be a clinician, an expert in forensic psychiatry, an administrator, a sociologist, an economist, a pedagogue, a specialist in the field of hospital construction, an authority in social-medical questions, as in combating social evils, alcoholism, venereal diseases, tuberculosis, etc.

The medical director and his assistants are not unfrequently criticized and attacked by the press and the mass of the people. Prejudices against hospitals for mental diseases are still deeply rooted in the people. Stories are told

of ill treatment, of unlawful deprivation of liberty, of tyrannical conduct, of cruelty, that have not the least basis of truth in them. It is frequently claimed that the psychiatrist has the power to declare any person sound or insane and that many persons are arbitrarily detained in the hospital without any cause. In cases of accidents, suicide, homicide, public opinion almost always throws the blame on the hospital physicians. The work of the hospital physician is full of trouble, responsibility, and danger, and many a psychiatrist has fallen a victim to his duty. The only remedy for these conditions is to enlighten the press on the true status of psychiatric science, for the press is the only means to influence the people and to remove from them the deep-rooted prejudices against public and private hospitals for mental diseases.

The Evacuation Hospital. Major Clyde S. Ford. Survey, N. Y., 1915, 369.

The author, who has been attached to an evacuation hospital during the Balkan wars, furnishes an article upon hospital work and the care of the wounded. The evacuation hospital he regards as the most important unit in sanitary service at the front. It is there that substantial care and surgical service for essential operations must be provided to prepare patients for transportation to base hospitals, where their fate may be determined. At the base hospital, the skilful volunteer surgeons and nurses, untrained in military service, may find their most useful employment. The so-called and oft-heralded "front" is the lure of nurse and soldier; the spirit of adventure tempered by the love of humanity in the one, and the love of country in the other; but its inspiration the author believes leads to failure of the nurse's mission, though it gives strength to the soldier's battle. The American Red Cross Society is not prepared to render any organized assistance to the army in time of war; and the lessons of the Balkan wars, as well as others that come daily to us from the battlefields of Europe, teach that it is service, not sentiment, that ameliorates the condition of the wounded in time of war.

The manner in which volunteer aid can be of most expeditious service to the wounded in war is to be learned from the preparations that all European Red Cross Societies have made, viz.:

1. General organization for the care of the wounded after they have been passed back from the zone of operations by the army sanitary department. This division is arranged with the sanitary department under the direction of the War Department.

2. Accumulation of large sums of capital which cannot be expended unless the country is at war. Only the income is available for administration. Special subscriptions only are applied to general relief work.

3. Organization of various aid units, such as field hospitals, base hospitals, field rest stations, railroad rest stations, hospital trains, hospital ships, transport columns, organization for distribution of patients, information bureaus and the establishment of depots of supplies.

4. Accumulation of material for the equipment of their various units.

5. Training of individuals for their special duties.

That there is scarcely any limit to the work which may be done by voluntary aid societies for relief of the wounded in time of war, but efficient results can only be obtained by preparation and organization in time of peace and hours of reason.

Bellevue Hospital, New York City, now has five women interns.

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Women on Hospital Boards.

A great deal is being written about the presence of women on the managing boards of hospitals, the inference being that they occupy these positions in company with other members who are men. The advantages of their presence are many, as might be proved if one were to cite the number of successful hospitals being managed entirely by women today; but there are disadvantages, as hospital workers who have had experience in the matter will agree.

For instance, it is a distinct disadvantage to a hospital to have on its board of managers those who pay more attention to the placing and position of rugs on the floor than to the fact that there is a shortage of blankets for the patients when the nights are cold. It is a distinct disadvantage, also, to the hospital to have a visitor question and make much ado concerning a tub of very dark water which she saw being used in the laundry, said water proving to be only the bluing water.

But these are exceptions and may be exaggerated exceptions to the rule that it is a good plan to have women on the boards of managers of hospitals.

It has sometimes been thought wise to secure the help and advice of women by putting them on training school committees, or visiting committees, or in certain other places where their powers are limited. Generally they prove their usefulness in these places and their willingness to render service without notice or other emolument, thus setting an example that might well be emulated by all classes of public workers.

It is a distinct advantage to the hospital inmates to come in contact with these women, who are usually selected from the best in the community, representing, as they do, the class which has leisure to devote to those purposes in which it is interested. They bring to their work a large sympathy that is always felt when their visits to the hospital are made. They are apt to acquaint themselves with details of the work, giving time in greater measure than most men are willing or able to give. It is this very matter of detail and insistent adherence to it that may make the woman visitor something of a bore and a hindrance to the over-busy and overworked administrator; nevertheless something may be gained from even this particular visitor if she can be met by a receptive mind and a spirit of cooperation.

As a rule these women are a refined body and the influence which they exert acts and reacts upon the patients to their benefit, as well as upon the nurses and other workers to their refining. It has very often been remarked by heads of hospitals where the woman's influence is unknown, that there is a void in the instruction and in

the finished product of the training school that could have been filled only by a woman's board.

A woman, member of a board of managers of a hospital in Scotland, when asked if women were acceptable to the other members of the board of managers who were men, replied, "Our men long ago discovered that they have not such a monopoly of the knowledge and wisdom concerning household affairs and the management of the sick as to do away with the services of women on their board."

Human nature and the needs of humanity are not especially different in America and women are here found to be most useful on boards of management of hospitals.

FASHION—THE MOLOCH OF WOMAN'S HEALTH, COMFORT, AND HAPPINESS.

Sensitive Nature of Woman Violated by the God Fashion—Men Are Left to Nature—Corsets, Collars, and Shoes Woman's Undoing—Doctors and Nurses Should Help Mold Proper Styles.

BY HOWARD MOORE, M. D., F. A. C. S.,
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(Continued from January, 1915, issue.)

First of all, a corset should be light in weight. Whether a corset keeps its shape depends on the material and the manner of construction rather than on the weight of the material used. It should be low, in order to support the abdomen from below upwards; it should fit well over the pelvis, in order that the support of the abdomen may come upon the pelvis rather than the spine, and in order that the support of the skirts may fall on the pelvis instead of the waist. The waist should be larger than is now the average, and the corset should be cut low in order that there may be far greater freedom from constriction and far greater freedom in motion of the ribs in respiration. It should be so cut as not to change the physiological curves of the spine.

Now, of course, it is perfectly obvious that the benefit will be lost if, after giving the waist plenty of circumference in the corset, the waist bands of the skirts are going to be made tighter. I have frequently seen a corset fit fairly well, giving plenty of freedom at the waist, constricted from one to two inches by the skirt bands which were fastened about it. This is actually far worse than having the corset made two or three inches smaller about the waist, for, while in the latter case there would be as much constriction, the corset would fit, and the pressure be more widely distributed. The skirts should be so fitted that they are supported entirely upon the pelvis, the waist band being made just tight enough to fit and not constrict. The means of supporting the stockings is another important thing. There should always be side or back supports in addition to those in front. Supporting the stockings by the front supports alone, whether they are attached to the corset or a belt, hangs a constant drag on the small of the back, a portion of woman's anatomy which oftentimes is hopelessly unfit to stand any prolonged strain, even though it may be exceedingly slight. The side supports tend to balance those in front and bring the entire support upon the pelvis.

The manner of lacing the corset is worth a little consideration. If a corset is laced from top to bottom with the same lacing, it is obvious that when the wearer bends her body laterally the top of the lacing will be separated, and because of this fact the waist will be pulled in by just as much as the top is separated. This defect may be remedied by using two, or in very long corsets three,

different lacings. Where only two are required, the lower one should lace about three-fifths and the upper the other two-fifths. When three are used, each should be given about a third of the lacing. The lacing should be tied, but loosely enough to permit of the corset being put on without untying.

But, in spite of the best of suggestions and the best of corsets, there will surely be a tendency toward weakening the natural supports, the abdominal muscles, and a diminishing ability of the internal viscera to perform their functions whenever the corset is worn. It is usually easier to prevent than to remedy, and nine out of ten women would

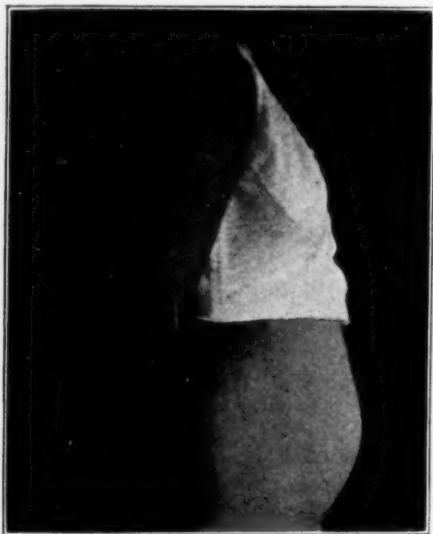


Fig. 13.

never need a corset either as a support or as a means of producing a better effect as regards their figure or their dress, provided they had from girlhood, by means of exercise, trained their abdominal muscles to act as a corset, and they would have enjoyed life far more. Furthermore, they would have been able, had it been necessary for their peace of mind, to have accomplished by exercises many of the changes of form demanded by the vagaries of Fashion, for it is perfectly simple to reduce or enlarge hips or waists by exercise.

In almost every woman who has worn the corset, unless she has taken care by means of exercises to prevent it, there will be found a varying degree of relaxation of the trunk muscles. This may be entirely overcome and the muscles may be kept in good tone by means of simple daily gymnastic exercises. Fig. 13 represents a young woman who had led an active athletic life, and who was physically fit, with the exception of her abdominal muscle, which did not develop in proportion to the muscles elsewhere in the body because of always having worn a corset. Stomach ptosis resulted from the relaxation of the abdominal muscle, with its consequent symptoms, due to the serious digestive disturbances. The stomach sagged so that its fundus was in the pelvis and had become very much dilated. The symptoms were relieved artificially by supporting the stomach with the surgical corset (Fig. 14). Proper gymnastics toned up the muscle of the abdominal wall so that eventually the normal support was given to the stomach, and health and increased vigor was the result. There are a number of general exercises, such as moderately long walks, skating, and especially swimming, that are of great service in maintaining tone in the trunk

muscles, and they have the additional benefit of performance out of doors.

Another important point of posture worthy of emphasis is the fact that the body is constructed on a plumb line, so to speak, and, if we allow any part of the body to become out of plumb, we must inevitably find that this will be compensated by variation in another part. Inasmuch as there are practically no abnormal conditions in the feet of the barefooted people or those who wear loose, flexible coverings, such as moccasins and sandals, it is strongly suggestive, to say the least, that the wearing of shoes has something to do with causing the many deformities and disabilities which are found in the feet of shoewearing people, and there are proofs that this is so. The wonder is that there are so few of these disabilities when it is understood just what the shoe actually does.

To make it easier for one to understand the effects of the modern shoe, a brief description of the wonderful mechanism and function of the feet is given. The foot must serve a twofold function—a passive support of the weight of the body and a lever to raise and propel it. For the proper performance of these functions, the foot is so constructed as to allow elasticity under pressure, and an alternation of attitudes under strain that protect it from injury. That is the key to the entire situation, because the average shoe (especially as worn by women) allows of very little elasticity or change of attitude.

A description of the arches of the foot will help to make clear the reasons for the effect of the shoe (Fig. 15). The transverse arch is that formed by the metatarsal bones, and of this the anterior part or so-called anterior



Fig. 14.

arch will be mentioned, as it is this part which most concerns us. It consists of the distal ends of the metatarsals. When the foot is used as a passive support, it is a patent arch, as the weight is borne by the first and fifth heads, those intervening being above their plane. During walking, as the weight is borne on the ball of the foot, this arch is depressed, but becomes patent again when the weight is passed forward to the toes. Thus there is provided a spring effect which relieves the pressure on the skin, blood vessels, nerves, and other structures under the arch. When the toes are called on to bear the weight and supply the force that propels the body forward, they spread

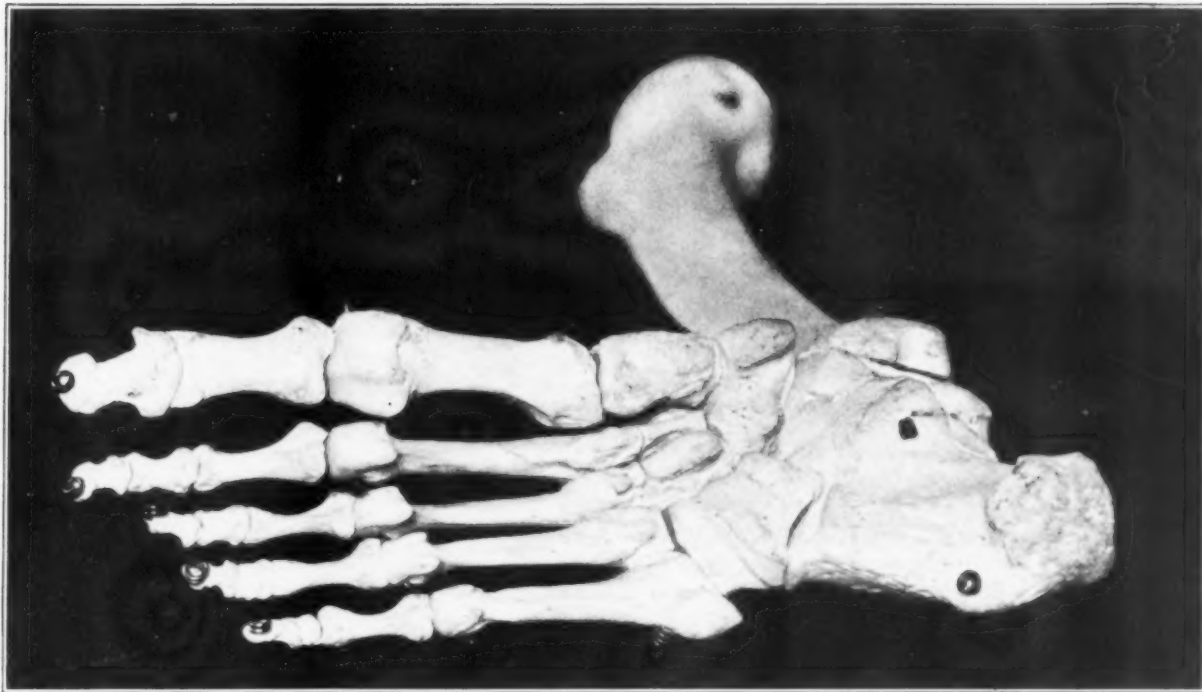


Fig. 15.

apart, and this spreading is one feature which tends to restore the anterior arch.

The longitudinal arch may be divided, for purposes of description, into two parts—an outer, formed by the os calcis, cuboid, and the two outer metatarsals, and an inner, formed by the os calcis, the astragalus, the scaphoid, the cuneiforms, and the three inner metatarsals. The former is low, depresses under weight, so that the outer border of the foot rests on the ground, is more strongly braced, and therefore is better adapted to weight-bearing than is the higher and more flexible inner part.

Considered as a whole, the long arch of the foot is unsymmetrical (Fig. 16). Its posterior leg is short, descends sharply, and is stable. It is therefore the weight-bearing

or supporting pillar. The anterior leg is long and flexible, not adapted to weight-bearing, but for supplying balance, elasticity, and spring.

When the foot is used as a passive support, the muscles play but a small part in maintaining its posture. Owing to the elasticity of the ligaments, motions are allowed in the joints, which change the contour of the foot markedly from what is true in activity; the outward curve of the inner border of the foot is obliterated, and the arch becomes slightly depressed (Fig. 17a). On the other hand, used actively, the foot assumes postures directly opposed to these; the muscles are engaged, the arch is maintained, the inner border of the foot is curved outward. During walking the foot serves as a lever. The distal heads of

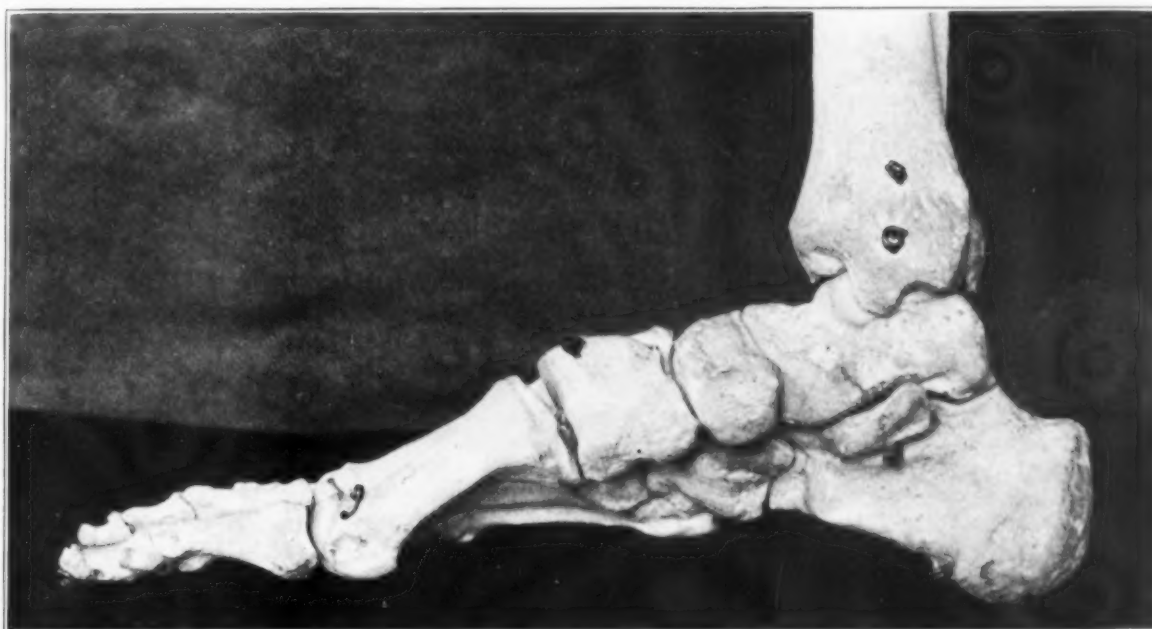


Fig. 16.

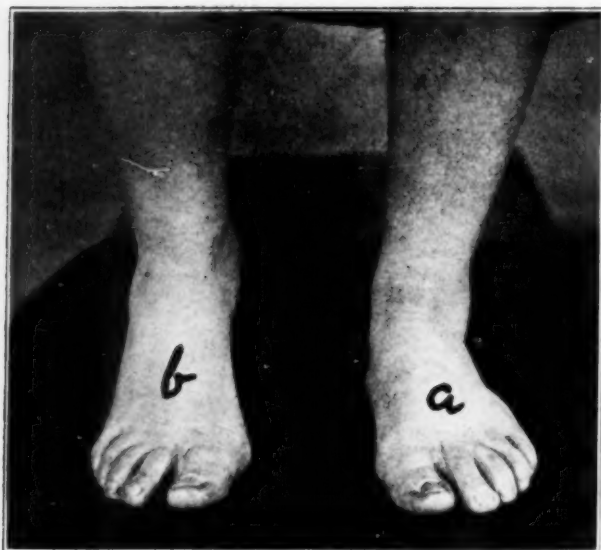


Fig. 17.

the metatarsals are the fulcrum and the calf muscles supply the power. The postures assumed are briefly these: the long axis of the foot is approximately parallel to the direction of locomotion; the weight is borne momentarily upon the heel, then the outer border of the foot, and then the heads of the metatarsals and toes as the heel is raised. Because of the difference in length of the metatarsals, there must be a turning outward of the leg, with relation to the fore foot, if the weight is to be distributed equally over the breadth of the fulcrum; therefore at the end of the step the foot appears "toed in" (Fig. 17b).

Can one imagine a foot performing its functions freely and fully, encased in the shoes commonly worn? A number of fair samples are shown in Fig. 18. This collection represents all the models a certain company had to offer.

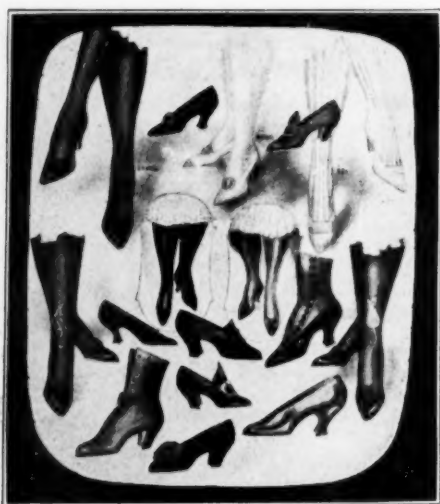


Fig. 18.

It will be noted that there is not a foot-shaped shoe in the entire lot. The elevation of the heel throws the center of gravity forward, so that a greater part of the weight of the body must be supported by the anterior leg of the arch, shifting it from the posterior leg designed and meant to bear it. This means strain in the ankle and all through the foot. Added to this is the strain caused by the outer border of the foot being distorted by the curved

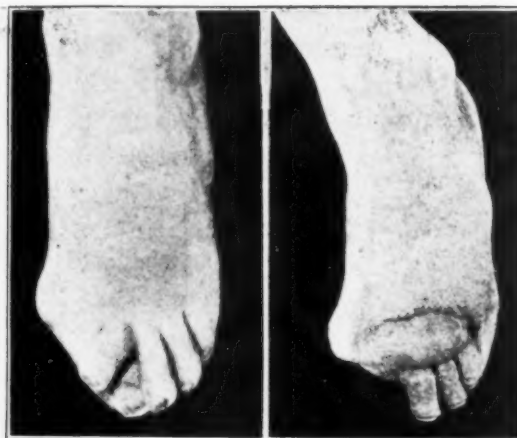


Fig. 19.

shanks of the shoes. The bearing surface of the heels is so small, as a rule, that the ankles are constantly being turned.

The narrow-pointed toe so constricts the foot at the anterior arch that there is no possible chance for the spring effect, and the toes are given no chance to spread, aid in restoring the arch, and aid in the push-off. This is all in addition to the actual production of deformity, such as hallux valgus (Fig. 19) and bunions, hammer toes, valgus, etc.; out-toeing of the feet is practically unavoidable, with its element of strain, not to speak of its awkwardness. The constant strain and weakness resulting



Fig. 20.

from this lessened flexibility and perversion of function, must inevitably lead to abnormal conditions, such as flat feet, pronated feet, anterior metatarsalgia, etc. In Fig. 20 are shown three models of dressy shoes, the pumps, the French-heeled slipper, also a foot-shaped, anatomical shoe, and a physiological shoe. There also appears a dancing slipper. These shoes were all fitted to the same foot, a tracing of which is also shown in the illustration.

As was the case with the corset, the reason the shoes produce weakness and deformity is they alter contour or posture, and limit or restrict the normal action of the structures incased in them. So the remedy, first of all, is to get a shoe that is the shape of the foot, or at least in which the foot can be placed without any distortion or pressure (Fig. 21), and, second, by means of gymnastics and tonic measures once or twice a day to supply the structures of the feet the exercises which they must have, and which the shoes prevent, and in training oneself to stand and walk properly.

As to the choice of shoes, there are a number of points of practical value and worthy of consideration. In the first place, a low shoe is preferable to a high one, and tan leather to black leather from the point of view of hygiene.



Fig. 21.

The benefit from a high shoe is entirely in the protection it gives to the ankle from cold or wet. The support which counts in a shoe is that which is under the foot rather than what is around the ankle, and this support depends entirely on the shape and size of the bearing surface of the shoe, especially the heel. The advantage of tan leather is in its increased porosity and lightness.

A shoe should, of course, be foot-shaped or nearly so; in other words, one which does not materially alter the form of the foot. There are a number of very satisfactory foot-shaped shoes on the market; so many, in fact, that there can be no excuse for not wearing them. As to the choice between a stiff and flexible shank shoe (Fig. 22), there is a difference of opinion among orthopedic surgeons as well as shoe men. The majority, however, of those who have carefully watched the effect of shoes have come to the following conclusions: the flexible shank shoe—in other words, the physiological shoe—is the shoe which all normal feet should wear, the shoe which, if worn, will probably keep the feet normal; on the other hand, the stiff shank shoe, or the anatomical shoe, should be worn by strained or most deformed feet for the reason that a flat foot is nothing more or less than a strained foot. To put this foot into a shoe which allowed increased flexibility would be like having a patient with a sprained ankle go barefooted. Such a foot should be supported and its flexibility somewhat restricted until such time as the acute effects of the strain are relieved, and the foot has been toned up and strengthened by means of exercises and other measures to maintain its normal posture and perform its function normally. It may then be put into the flexible shank shoe, and will probably continue to remain normal. If the foot has become weakened, or for any other cause

there are symptoms which demand attention, a surgeon should be consulted. Time and money will usually be saved.

Because so many things may happen, it is impossible to outline, in general, measures to cover all cases; feet are as varied as faces, and the same shoe and the same measures of treatment obviously will not fit every case. There are, however, a few general measures which will tend to prevent any trouble with the feet. In the first place, habitually using the feet properly, both when standing and when walking, and by this is meant the slight in-toeing; secondly, the wearing of a shoe which is foot-shaped, whether with a stiff or flexible shank; and, third, keeping the feet in good tone by daily plunging them alternately in hot and cold water.



Fig. 22.

In conclusion, it is perhaps well to emphasize that the human body is nothing more or less than a machine of extremely delicate adjustment, and one from which a greater variety is expected in the nature of the work to be performed than would be considered possible of any other conceivable mechanism. Every individual is represented by a certain potential. If the individual is to deliver to the world his maximum possibilities, it is essential to have the machine in its best possible working order. This can be only when it is as Nature constructed it. Any variation in its form, posture, or manner of use means either friction, strain, or, in other words, waste, and the output must be materially lessened.

Express Training.

To the Editor of the British Journal of Nursing: Dear Madam—May I, as a matron, speak a word of warning? At this country hospital it is almost impossible to get well-educated probationers. All the possible young women are now assuming full nurses' uniform, with the addition of a large red cross, and being called and treated as *trained* nurses by medical men and society people connected with the British Red Cross Society. "They know all they need to know," a military medico said quite recently. Meanwhile our patients suffer, and will do so more in the future if all this "express training" is not discouraged.—Yours truly, Tired of Making Bricks Without Straw, East Anglia.

A careful nurse will keep a constant watch over her sick, especially weak, protracted, and collapsed cases.

FLORENCE NIGHTINGALE.

PHILANTHROPY and the PUBLIC HEALTH

Conducted by the New York Association for Improving the Condition of the Poor.

Bailey B. Burritt, General Director. William H. Matthews, Director Department of Family Welfare. Donald B. Armstrong, M. D., Director Department of Social Welfare.

A PEOPLE'S LAUNDRY TO SUPPLEMENT PUBLIC BATHS.

New York Organizations Plan to Provide "Clean Clothes for Clean Bodies."

BY HOLLAND HUDSON.

Not the least factor in the problem of public health is that of personal cleanliness. The New York Association for Improving the Condition of the Poor, of which Mr. Bailey B. Burritt is general director, has every reason to

believe that personal cleanliness has much to do with both the health and economic status of families in all walks of life. A family may be dirty because it is poor; but it is likely to remain poor because it is dirty. Cleanliness is at once a matter of personal hygiene and public decency.

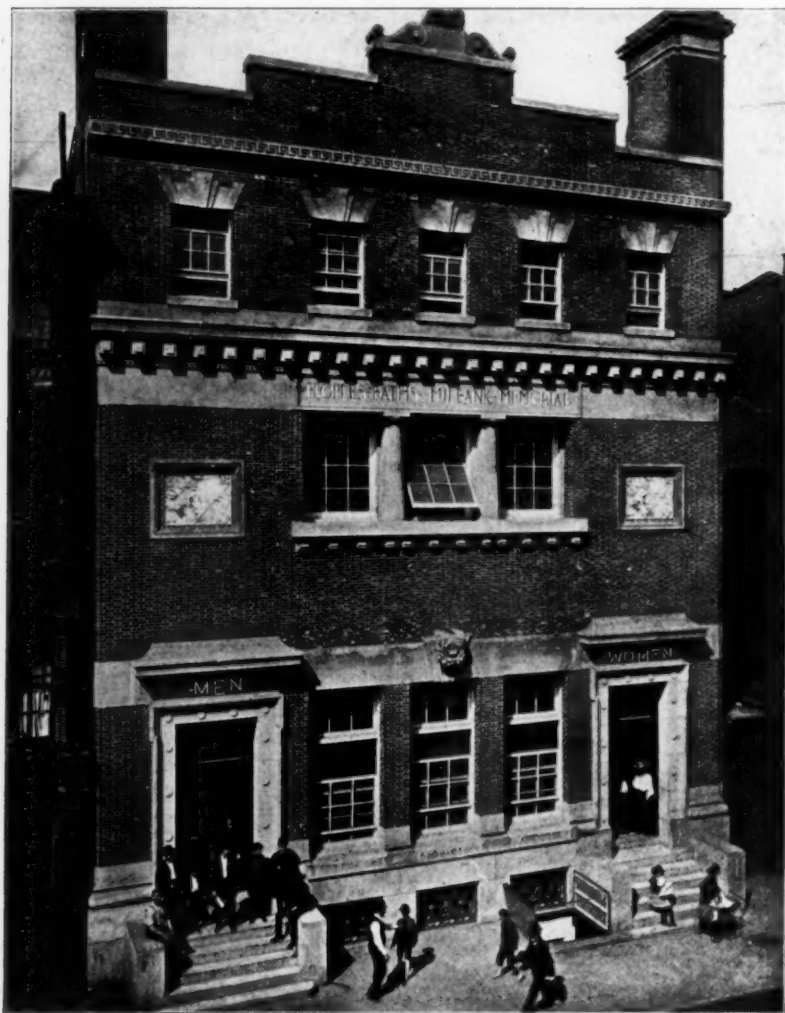
The New York Association for Improving the Condition of the Poor first met this problem in 1891, when the "People's Bath" was established in New York City. The purpose of this bath was to make it possible for those who had the inclination but not the means for keeping clean, to realize this ambition. The effect of the immediate popularity of this bath was to start the municipality on a thoroughgoing policy of free public bath construction, in which it now leads all American cities. Fourteen public baths are now open to the public, with a total attendance of over 4,000,000 in 1914. Public baths have solved only part of the problem of personal cleanliness. It is still difficult for a person of small means to clothe a clean body with clean clothing. The Bureau of Public Health and Hygiene has devoted a considerable part of its energies since its inception two years ago, in determining, in the interests of public health and decency, how clean clothes might be made as accessible as clean bodies. An intensive investigation of residential wash-tub and hot-water facilities in four districts of New York City, containing a population of 205,850, showed them to be patently inadequate. The only facilities in the congested districts consist of ordinary laundries, whose prices are out of the question for families of limited income, and

wet-wash laundries, whose methods are open to severe criticism from both a business and a sanitary point of view.

With these facts in mind, the Bureau of Public Health and Hygiene has fostered two enterprises which, it is hoped, may lead by a normal evolutionary process to public laundries, as the original "People's Bath" led to the present municipal baths, if a similar usefulness can be demonstrated.

The first of these has been to plan, with the Bureau of Public Buildings and Offices of New York City, the establishment of a public wash house, similar to those in other American and foreign cities, in connection with the new West 28th Street Bath, which will provide tubs, driers, etc., and to which for a nominal fee women can bring their clothes and wash them in clean, roomy and attractive quarters with proper conveniences for laundry work. A children's play room may be maintained in connection with this wash house for women who are obliged to bring their children with them.

The second and more unique enterprise is being conducted by the Bureau of Public Health and Hygiene of the Department of Social Welfare, under the direction of its superintendent, Mr. Philip S. Platt. It consists in the establishment and maintenance of the first semi-public model wet-wash laundry in the United States, operated at cost. This resembles the ordinary wet-wash laundry in that it relieves the household of its worst drudgery at a small cost, returning the clothes to the owner ready for ironing. It differs from the ordinary wet-wash laundry in that its methods are as sanitary as those of a modern hospital. The machinery used is of the latest and most efficient



The Milbank Baths, New York City.

type in the market; consisting of washers, hydro-extractors, etc. Clothes are handled with unusual care, and as the laundry is run at cost, thirty pounds of white wash are called for, washed and returned within twenty-four hours for 35 cents, or 25 cents without collection and delivery service.

The Milbank Wet-Wash Laundry is conducted constantly from the point of view of its service to the people in the neighborhood. At the same time it is a laboratory for testing in every detail the feasibility of a public laundry system. The laundry was opened only after a careful canvass of 500 homes in the neighborhood, which indicated that such a laundry would be cordially welcomed by most of these families.

The Milbank Laundry patronage has been increasing constantly since its opening in November, 1914. The families who have never sent out their "washing" before have been enabled by the exceedingly low charge to devote the time formerly spent on washing clothes to other home and family work. Families who have done their washing at home because they objected to the filthy methods and unsatisfactory work of commercial wet-wash laundries, have at last escaped the undesired burden without sacrificing cleanliness. All this has been accomplished within the small neighborhood immediately adjacent to the plant.

It is hoped that the public wash house on West 28th street will be equally successful under the management of the municipality. The establishment of people's laundries is a genuine move for public health and decency, and it is felt that both of these experiments, if successful, will demonstrate a field for legitimate and much-needed municipal action.

A STUDY OF LAUNDRY AND BATH FACILITIES IN THE HOME,
SHOWING CONDITIONS WHICH INDICATED THE
NEED OF A PEOPLE'S LAUNDRY.

District studies	Population	Percentage of families without		
		Bath	Wash- tubs	Hot water
Milbank Bath Section...	78,850	87%	36%	
Hudson Park Section...	53,000	99%	45%	94%
Franklin Square Section.	35,000	95%	27%	72%
Region of 28th St. and 9th Ave.	39,000	87%	50%	97%
Total and average..	205,850	92%	40%	87%

NATION-WIDE WAR ON TUBERCULOSIS.

Expenditure of More than \$1,000,000 in Past Decades Has
Reduced Death Rate 17 Percent—Work of
the National Association.

Scarcely ten years ago the anti-tuberculosis movement in the United States was in its infancy. There existed only a very few struggling associations and poorly equipped institutions and dispensaries. Today more than 2,500 special agencies are in close cooperation with the national association, and the handful of institutions have increased to over 550 efficient sanatoriums, hospitals, and day camps, extending from coast to coast, with a bed capacity of fully 35,000. Thousands of physicians and visiting nurses are engaged exclusively in tuberculosis work. More than 250 open-air schools and outdoor classes are now in operation, while special provisions for the tubercular have been made in prisons, almshouses, and hospitals for the insane.

Legislation to control the spread of tuberculosis has been considered throughout the length and breadth of the country, resulting in the enactment of laws in forty-eight

states and territories. Never in the history of the world has such a far-reaching organized crusade against disease been launched; yet, unfortunately, the goal—an effective, specific prevention and cure of tuberculosis—continues to baffle every effort. A long necessary step has been taken toward an ultimate solution in the remarkable campaign of popular education through press bureaus, exhibits, and moving pictures. The national association launched its press bureau in 1908, the first of its kind in the United States. Today over 185,000 bulletins are issued yearly to more than 8,000 newspapers. Cooperation with a score of other well organized press bureaus now existing in different states, and the new syndicates, has greatly strengthened and increased the association's publicity service.

While the expenditures of the national association in ten years have been but \$200,000, it is due to a great extent to its stimulus that national, state, and local agencies have spent \$100,000,000 in this fight against tuberculosis. A decline of 17 percent in the death rate from this disease in all its forms is shown in states where statistics have been kept for the past ten years. This cheering result of the extensive and varied campaign has come, not through the difficult paths in the science of immunity and its problems, but along the broad highway of prevention through hygiene and sanitation.

The association in its persistent attack on tuberculosis from every conceivable angle is beginning to get a proper perspective on this disease in its relation to other diseases; to realize fully that the preventive measures adopted for tuberculosis are identical with those necessary for the general conservation of health. The agency that should undertake the conservation of the health of the people is logically the government. The Pennsylvania and Ohio State Departments of Health have built up comprehensive and far-reaching organizations to wage war on tuberculosis. They each have a chain of dispensaries, supplied with corps of physicians and nurses, and a chain of sanatoriums. Each unit of these organizations dovetails into other units, not only promoting harmonious development of each phase of anti-tuberculosis work, but securing efficiency and economy. These states, by establishing and developing tuberculosis work under state and municipal control are most certainly taking the first steps toward an inevitable public control and support of the wider general health, as well as the social and recreation needs of the community as a whole. Gradually, the placing of responsibility for conditions that make for poverty, disease, and crime is resulting from the efforts of this association and the many other agencies in the public health field. The state and municipality will eventually come to realize the real value of the conservation of human life and human effort.

Not only do things in a workmanlike manner in your institution, but impress on the general public the fact that you are doing them right. I know a hospital where, in the maternity and children's departments, they compel doctors and high-class, clean visitors to put on a gown and cap before they can be admitted. The hospital has achieved a most enviable reputation as a scientific, carefully conducted institution. But in that same hospital they allow the filthy, vermin-infected friends of free patients to go into the maternity and children's departments during the busy visiting hours with never a sign of an overgarment on; and after the visiting hours there is a grand roundup of bedbugs and even less welcome left-behinds. Those visiting hours are nightmares, but they can't be helped; and the effort and intention are there and the reputation hangs on those.

PREVENTION of TUBERCULOSIS

Conducted by the Officers of the National Association for the Study and Prevention of Tuberculosis.

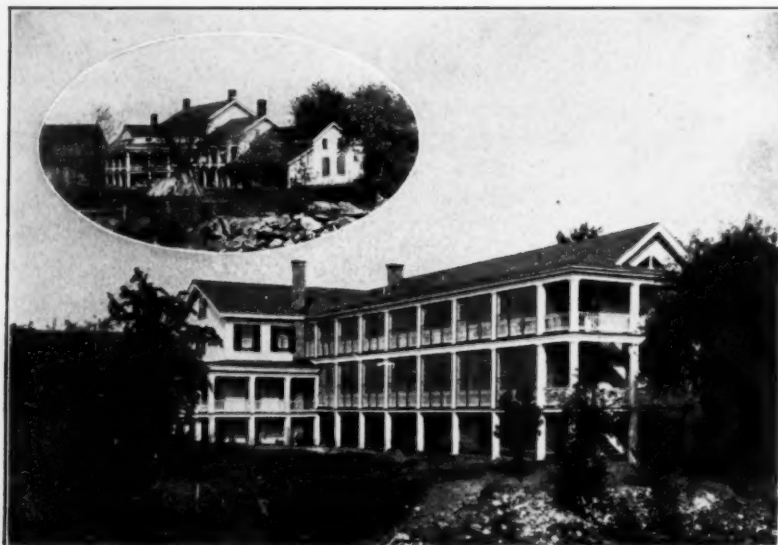
New York State Tuberculosis Campaign.

The earthworks of the worst enemy of the human race, tuberculosis, are being valiantly stormed in New York by regiments of physicians and laymen under the efficient leadership of officers of the State Department of Health.

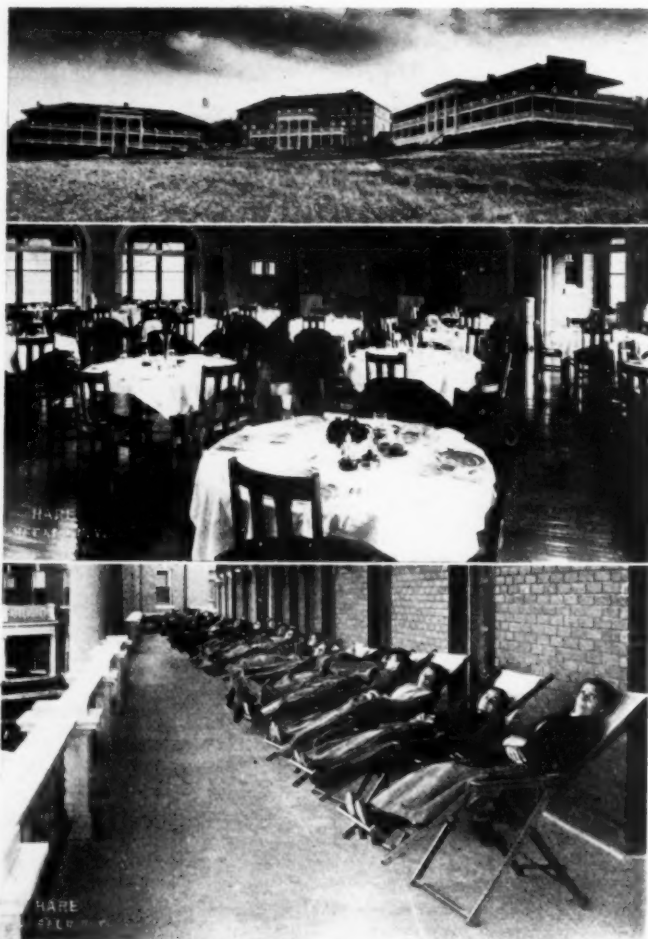
The plan of campaign, as briefly outlined by Edward A. Moree, advisory expert in public health education, involves:

1. Employment by city, town, and village health boards of visiting nurses to work under the direction of the health officer.
2. Establishment of dispensaries by health authorities of the larger cities and villages for the examination of suspected cases.
3. Establishment of open-air schools for anemic and sickly school children predisposed to the disease.
4. The efficient medical examination of school children for the discovery of early cases of the disease and for the removal of adenoids and enlarged tonsils, and for the discovery of other physical defects.
5. Most important of all, the establishment of tuberculosis hospitals by county boards of supervisors for the cure of early cases and the segregation of advanced cases.

In nearly one hundred communities throughout the state, nurses are caring for the sick and giving practical instruction in hygiene; dispensaries in thirty cities and villages are offering free examination and advice; open-air schools are fast becoming the rule in the cities, and the larger villages are getting ready to swing into line.



Montgomery County Tuberculosis Hospital, near Amsterdam—Insert shows farm house that was remodeled into the hospital. Cost of site \$9,000; construction \$15,000. 20 beds.



J. N. Adam Sanatorium, Perrysburg, Cattaraugus County—Receives only incipient cases from the City of Buffalo. Upper picture, general view of buildings. Center, dining room. Lower, porch for women. Capacity 250.

New York State, some years ago, wisely decided that tuberculosis was largely a local problem, and the logical solution, apart from questions of financial expediency, was county hospitals.

With inadequate provisions for their insane, their prisons deplorably overcrowded, and wide awake to the sinister phases of the problem of their feeble-minded and the urgent need of large expenditures for segregation of these unfortunates, the states are already committed to more work than they can hope to accomplish in a decade. The fourteen states that have enacted legislation similar to the New York county hospital law furnish a more striking endorsement of the wisdom of New York State's tuberculosis policy than the counties whose boards of supervisors have established hospitals under this law. Twelve counties now have hospitals and nine more have voted to establish institutions under the county hospital law. Some of these nine are still looking for sites, while others have their institutions under way.

The new Union Hospital recently opened at New Ulm, Minn., is a three-story and basement brick structure. It was erected at a cost of \$46,000, and \$30,000 additional was spent on equipment. The hospital is said to possess every desirable modern facility, including mud baths, sun rooms, up-to-date operating room, fireproof steel elevator, etc.



Conducted by Carolyn Conant Van Blarcom, R. N., Secretary National Committee for the Prevention of Blindness.

The Menace of Wood Alcohol.

Although for many years medical publications have abounded with editorials, papers and reports upon experiments in connection with the poisonous qualities of methyl or wood alcohol, we find today that the public at large and a very generous sprinkling of the medical profession have little knowledge of the real dangers attendant upon the use of this spirit.

The recent tragedy in Vermont, in which fourteen persons were killed and a number of others blinded by drinking whisky adulterated with wood alcohol, brings forcibly to mind the fact that this poison is dangerously available and that legal provisions throughout the country are inadequate to protect the public. The Vermont incident is an example of what happens every little while in other states.

A very recent instance is that of a number of Armenian rug weavers in New York City who were poisoned by drinking anisette, consisting largely of wood alcohol. Three of the men died, and two were blinded. As the groceryman who sold the anisette and the man who manufactured it have no property, it is not possible to secure damages for those who were blinded, nor for the widows of the men who died. These cases may be prosecuted by the district attorney and small fines imposed, the payment of which would simply enrich the state, but in all probability have little or no effect upon the problem as a whole.

The difficulty goes even further back than the small manufacturer—that is, to the producers of wood alcohol who rectify this poison so highly that it cannot be distinguished from grain alcohol, known to the trade as “Cologne spirits.” This rectified wood alcohol, possessing all of its original poisonous qualities and closely resembling grain alcohol, has been put on the market under various misleading names, among them being Colonial spirits. As Cologne spirits and Colonial spirits look, smell and taste alike, we cannot wonder that the poisonous alcohol is sometimes used instead of the non-poisonous spirit.

The Vermont druggist claims that he ordered, and thought he was using, Cologne spirits, but that he was actually sold the poisonous Colonial spirits.

During the last session of the New York State Legislature, the Committee for the Prevention of Blindness endeavored to have passed a law designed to prevent wood alcohol poisoning. At the public hearing on this bill, the danger of confusing Cologne and Colonial spirits was emphasized by the president of the State Pharmaceutical Association. He described a case in which a druggist ordered Cologne spirits, or grain alcohol, to use in preparing his tinctures, extracts, etc. In response to his order he received a five-gallon can labeled “Col. spirits.” For some reason this druggist analyzed the contents of the can, and

found it to be wood alcohol, the “Col. spirits” evidently being used as an abbreviation for both Colonial and Cologne spirits. Since as little as a teaspoonful of wood alcohol has caused blindness, this man’s precaution evidently averted just such a tragedy as has occurred in Vermont.

In spite of the abundance of such evidence as this concerning the dangers of allowing wood alcohol to be sold under present conditions, those interested in the manufacture of this product were successful in their efforts to have the committee’s bill defeated.

The New York City department of health has recently amended its sanitary code to require all forms of wood alcohol to be labeled “wood naphtha” and to bear a poison label, together with the skull and crossbones. This is the most definite step that has thus far been taken in this country toward preventing wood alcohol poisoning from imbibition. This requirement, however, will be effective only in New York City, and will have no bearing upon poisoning following the inhalation of wood alcohol fumes in the industries.

Recently the wood alcohol manufacturers were requested to employ for rectified wood alcohol less misleading names than those now used. One firm has declared its willingness to label all of its rectified wood alcohol as *Columbian menthanol*. This change may be salutary in its effect, but it is feared that the retention of the well-known term “Columbian” will be less helpful than would the substitution of an entirely new name.

But even the adoption of an entirely satisfactory trade name for this dangerous product will not obviate the necessity of carrying on a widespread and vigorous educational campaign, for those who use any form of wood alcohol in their homes, hospitals or industries must realize that “wood alcohol by any other name will be as poisonous.”

So far as we are able to learn, there is no state in the country in which the combined provisions of the liquor, pharmacy, agricultural, and health laws are adequate to prevent death and blindness from swallowing and inhaling wood alcohol. The United States claims the unenviable distinction of being the one country of which this is true.

When by state laws or through rulings made by the state departments having jurisdiction, all forms of wood alcohol are labeled poison, as is required by the New York City Department of Health, and wood alcohol in the industries is replaced by industrial (denatured) alcohol, we shall cease to hear of these pathetic and wholesale disasters.

It is announced that work will be begun early in the spring on the new home for St. Joseph’s Hospital, Kansas City, Mo., to be erected at a cost of between \$400,000 and \$500,000. The building will be set back 160 feet from the sidewalk on Linwood boulevard, between Prospect and Wabash avenues, and will be surrounded by shrubbery and a light iron fence, leaving ample space for a garden in which patients may enjoy fresh air and rest. The hospital will be six stories high and contain 250 beds. From the ground to the first floor line the building will be of stone, but above the first floor line brick and terra cotta will be used. Each floor is to have two diet kitchens, a telephone will be placed at each bed, there will be dining rooms for nurses, sisters, and doctors, four electric dumb waiters for each floor, a dressing room for each floor, and four operating rooms. The dressing rooms are to be used for dressing and caring for injuries, making it unnecessary to remove patients to an operating room for such attention. There is to be a separate power plant, which will provide refrigerating, laundering, and other needed facilities. Later on, a chapel, quarters for the sisters, and a nurses’ home are to be built.

A movement for a county hospital has been launched at Duquoin, Ill.



FOREIGN CORRESPONDENCE

The British Army Medical Service in the Field.

[The British Government objects to army officers writing for publication over their names; hence the absence of the writer's name at the end of this letter.—Ed.]

The sphere of duties of the Medical Service of the British Army is regarded as embracing four distinct departments: first, the preservation of the health of the troops; second, the professional treatment of the sick and wounded; third, the provision of medical and surgical equipment; and fourth, the collection and evacuation of the sick and wounded from the battlefield, the line of communications and the base (if in a foreign country), and their ultimate disposal, until recovery, invaliding, or whatever may be the final issue, at home. The second and third departments are entirely in the hands and under the control of the professional medical staff of the army; the first and fourth departments are to a great extent under the control of, and carried out by, the combatant authorities in whose hands must remain the many technical details involved in military administration, and in the movements of troops, but the laying down of principles, and the eventual responsibility for seeing that the necessary measures are effectively carried out, must remain with the medical corps.

A short sketch may be given of the arrangements that are actually in operation for the care and treatment of the wounded in the first place; though it must be fully acknowledged that the preservation of the health of the army, the maintenance of its fitness as a fighting machine, is of more importance than the treatment of sickness; and further, that in most campaigns, from a military point of view, as well as from the standpoint of professional work involved, disease is a much more important factor than wounds inflicted by the enemy.

The medical service in the field is organized on the principle of *rapid evacuation*, both of the wounded and of the sick; and it is considered that when this is effected by means of good organization and administration, the mobility of the army and its *morale*, or tone, are sustained and improved. The principle has also been adopted of a division of the organization into three zones, which in practice must overlap, but a clear conception of which will tend to a grasp of the general plan that should be carried out, whatever be the modifications needed in exceptional circumstances. It was the much respected professor of military surgery at the Netley Army Medical School, Surgeon-General Sir Thomas Longmore, a veteran of Crimean experience, who clearly laid down the principles that must be understood, whatever may be the modifications necessary owing to the conditions of particular cases. The three zones are:

(1) The Collecting Zone, corresponding with the area occupied by the Field Units; (2) the Evacuating Zone, corresponding with the Line of Communications; and (3) the Distributing Zone, which also includes part of the Line

of Communications and extends outside the theater of operations.

In the *Collecting Zone* there are, first, the medical establishments with the Field Units; and secondly, the Ambulances. Every officer and man on active service carries, on a string around his neck, an identity disc made of metal, which shows his name, regimental number (except in officers), the unit he belongs to, and his religion; he also carries a first field dressing in the right-hand skirt pocket of his field service coat. Each complete military unit—that is, a cavalry regiment, a brigade of artillery, or an infantry battalion—has attached to it an officer of the medical corps, who has with him a corporal and two to four men of that corps, together with a noncommissioned officer and six or eight men of the regiment, who act as stretcher bearers. All these men have been trained in first aid, and during an engagement they arrest hemorrhage, apply the field dressing, and (if possible) remove the wounded from the firing line to the nearest cover, bringing them to the nearest regimental aid post; if this cannot be done, they are collected in groups, to facilitate subsequent removal. A specification tally is affixed to the wounded man, when he has been attended to, stating the nature of the injury. Severe cases have a red tally. In civilized warfare no one, except the stretcher bearers, is to take a wounded man to the rear, unless ordered to do so. The regimental aid post is, if possible, under cover, or out of the line of fire, but should be near enough to the fighting line to be easily accessible.

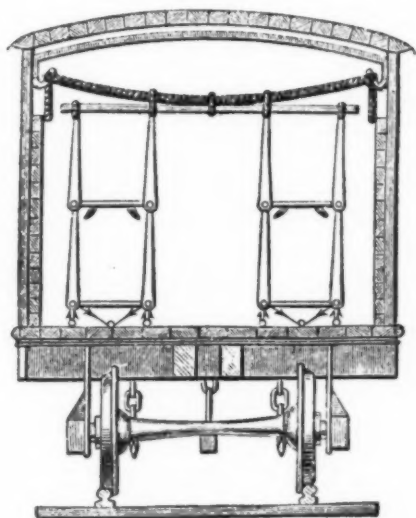
The Field Ambulance (which word has the signification of the French *ambulance*—that is, the whole establishment, including *personnel*, tents, wagons, horses, and equipment—and does not merely mean the ambulance wagon), is divided into three sections, A, B, and C, each of which consists of a Bearer Division and a Tent Division. The former advances with stretchers as near as may be practicable to the fighting line, and searches for wounded; the main business of collection, however, generally takes place after the battle, and may have to be continued for many hours, all available troops being called in to assist in the work, and search over the field of action systematically. The tent divisions of the ambulance prepare the dressing stations, which may be located in tents, or in buildings, if suitable ones are available. These dressing stations should be as close up as possible, their nearness to the fighting line depending on the nature of the country and means of protection from fire; they must be readily accessible, near a water supply, and capable of rapid expansion.

The *Evacuating Zone* corresponds with the Line of Communications. The medical establishment consists of three, or, in certain cases, four, separate services: (1) clearing hospitals, (2) ambulance trains, (3) advanced medical store depots, and in some circumstances (4) stationary and general hospitals.

The Clearing Hospital is the central point to which the collecting zone converges, and is called "the pivot upon which the removal of sick and wounded turns." By it is established a regular flow of sick and wounded from the front along the Line of Communications. There is one to each army division, and the hospital is accommodated in buildings, if they are available, rather than in tents; at the same time a clearing hospital must be capable of considerable expansion, as it is here that sudden accumulation of cases is likely to occur: it is nominally equipped for 200 patients. A great difficulty in the management of the clearing hospital is the decision of the question, what cases to retain, as likely to be able to resume duty

before long, and what cases to send down to the base, as likely to be of no use for some time; and it is here that blockage is almost certain to occur.

Ambulance railway trains to carry 100 lying-down cases are provided in the proportion of one to each division. This mode of transport is the best way of evacuating the field medical units, and is adopted wherever possible. There are three kinds: permanent ambulance trains are composed of coaches specially constructed for the purpose of conveying lying-down cases, and with corridor accommodation to kitchen, dispensary, etc.; temporary ambulance trains consist of ordinary vehicles with some



Transverse section of a goods wagon fitted on Zadovski's plan.

special arrangement, such as Zavodovski's, for slinging stretchers in the wagons. Improvised ambulance trains consist also of ordinary vehicles, improvised for sick transport as well as can be done on the spot. Advanced medical store depots, one for every two army divisions, are located at the advanced base. Within the line of communications area both stationary and general hospitals may be established under certain circumstances, but they more often come within the third zone, now to be mentioned.

The third, or *Distributing Zone* of medical operations lies partly in the war area, where it belongs to the line of communications, but includes also Hospital Ships and hospitals in the United Kingdom. In the former category are included stationary and general hospitals, base medical store depots, line of communications convalescent depots, and ambulance trains. Stationary Hospitals are located at selected points, and are organized for 200 patients each, but to be capable of considerable expansion; two are provided for each division, and buildings are used for the purpose, if available, rather than tents. General Hospitals are also provided in the same proportion of two for every division, each accommodating 520 patients (including 20 officers), and are housed in buildings, where available; supplies of clothing, necessities, and equipment are issued to patients as required, and the accommodation, dieting, nursing, etc., approximate to the standard of the larger military hospitals in peace time. A Base Medical Store Depot is provided for every two field divisions. Convalescent depots are established in connection with general hospitals, to relieve pressure and insure that adequate accommodation is available at all times for serious cases coming down from the front. Hospital Ships are equipped for 220 beds each, and provided in the proportion of one

for each division. Lastly, come the large military hospitals at home, such as the Victoria at Netley, the Herbert at Woolwich, the Cambridge at Aldershot, and many others at various stations, all of which are available for the reception of sick and wounded from the seat of war; and if these are not sufficient, military patients are drafted temporarily to civil hospitals in London and elsewhere.

A RETIRED ARMY SURGEON.

MINNESOTA TOWN HAS NEW SURGICAL HOSPITAL.

Modern Fireproof Building Erected at Dawson for Private and Free Patients.

The new Dawson Surgical Hospital, at Dawson, Minn., was opened in December.

The building is a modern three-story and basement fireproof structure, of brick, steel, and concrete, of the colonial style of architecture. The brick work is wire rough-cut, with rough raked joints, colored to match the brick. The roof is covered with asbestos shingles. The walls are built according to the concrete tile and joist system, of load-bearing Chaska brick, the inner course being hollow, to make the building warmer, as well as soundproof.

The floors in the patients' rooms are of maple over cinder concrete fill. In the corridors and the sun porch the floors are of Italian terrazzo marble. The baseboards in the corridors and sun porch are of the same construction as the floors, with all corners rounded, to make them easily kept clean. All floors in the operating and sterilizing rooms are of white ceramic tile, with round-cornered baseboards of the same material. The finish in these rooms is white enamel. The rooms on the first and second floors are said to be beautifully finished. The doors are of the finest quality of six-ply flush veneer birch. The finish in the basement is in white enamel.

At the end of each corridor are large French doors opening on a balcony with an ornamental iron rail. All corridors and the operating room are vented through large galvanized iron vent ducts, connected with the open air through a large ventilator on the roof.

All wall and ceiling surfaces throughout the building are tinted in soft colors pleasing to the eye.

One of the main points of attraction is the beautiful marble stairway.

There are several private rooms, some of them with private baths; and every convenience is provided for the comfort of the patient. There is an elevator, connecting the four floors, and a dumb-waiter connects all the diet kitchens with the main kitchen in the basement. The electrical equipment includes a noiseless annunciator.

The lighting of the operating room is of the most approved and modern type.

The building is heated by the vapor vacuum pressure system. On each floor is an opening into a flue, through which refuse matter and sweepings may be dropped into an incinerator and burned immediately.

There is an x-ray laboratory in the basement, and another room will be equipped with apparatus for bacteriological work.

The hospital was erected at a cost of \$33,000 by an incorporated company in which there are more than a hundred stockholders. The staff is composed of Drs. A. A. Stemsrud, H. M. Johnson, and O. N. Meland, all of Dawson.

It is planned to establish a school for nurses in connection with the hospital.



LETTERS *to the* EDITOR

Dr. Grenfell on Belgian Relief.

St. Anthony, Newfoundland, December 21, 1914.

To the Editor of THE MODERN HOSPITAL:

The people here have been asking me, "Has the war anything to do with the weather?" Is a just Providence trying to freeze the passions and cool the fury of the slaughtering hosts of Europe? Here a summer that for the first time in the memory of living man saw the Straits of Belle Isle nearly full of old Arctic ice on the first of August, has seen our mail steamer unable to cut through new ice early in December many miles south of the Straits.

Eleven times already this winter our wires have been broken down by the storms and left us wondering if peace has also overtaken suffering civilization, now that we are sorrowing over freights of the necessities of life, which the late summer made it impossible for the fishermen to purchase earlier and which get only just near enough to us to leave us the more impatient over their whilom proximity when they "turned again south." Moreover, unless westerly gales come and come strong and soon, we shall expect no more supplies till next June. The last boat, by which I got back to hospital a fortnight ago from a long round of visits to the villages at the bottom of this great bay, struck the ice sixty miles south of here. The sea was never more beautiful. Too rough to freeze in the prosaic flat manner which we associate with fresh water ice, it had taken to itself an ice mantle of round pans about a foot in diameter. As we plodded through it the waves raised this ice-chain armor, and it looked for all the world like the scales of some leviathan salmon which, glinting in the winter sun, seemed to us as we watched it, fascinated, to be gorgeous, gold-edged silver plates.

Having charged and butted her way far enough into the standing harbor ice to land freight, the goods brought from the South were soon being deposited on this beautiful natural wharf, and to our infinite joy we beheld box after box of splendid warm clothing from the Ladies' Needlework Guild of Boston, Massachusetts, heaped up amidst a chaos of big sledge dogs, komatiks and men in their picturesque canvas overalls or kossacks, which our people are using increasingly every winter. This was indeed another scene which fascinated not only the eye but the soul of the solitary doctor, who had in his mind's eye the ill-clad bodies of many patients whom he had examined on his recent trip. It was dark but for a brilliant moon, for we had "reached in" in the early hours of the morning, and cold feels colder far in the dark before daylight. But the sight of the welcome gift from the New England ladies warmed up one's soul to a fervor which made this letter of gratitude simply inevitable. I wish most heartily to thank the contributors through your columns and to suggest that if they do not fully realize the value of their message of love they should come and try our harbor ice at 2 a. m. with a breeze of wind blowing and the ther-

mometer away below zero; or try the same night in some little cottage without radiators, when with only a mean, scanty, cotton clothing supply you have crawled out from under an insufficient blanket and haven't yet rekindled the stove. A frozen sea may stretch between the giver and the recipient of the clothing, but these spans woven with woolen links annihilate space with their spiritual bonds.

Material facts are sometimes lightly considered the only ones of interest; but the sacrifices which our people have just made to send help to the poor Belgian refugees have so impressed us that we cannot help but see how contagious a fever love is and what a reflex it always produces, and how its irresistible energy can never be lost.

"We must do something or stop praying with our mouths," was the sentiment of the village. "Silver and gold have I little, but such as I have I will give," was the deduction from the condition of the village.

On December 16th our large school room, loaded with gifts in kind, was the result. The work done by our generous helpers has not only trained capacities but bred a spirit; and as on the fateful day of the great "scale of work" the various "goods" were brought in, one scarcely knew whether to laugh or cry at the generosity displayed.

Here came a man with a new dog sledge, next a poorer man with a brace of wild ducks, two women carrying cakes, a man with some snow shoes, a woman with two loaves of bread, a young fellow with a splendid northern netted dog whip, a man with a wonderful model sledge, dolls, stuffed puppies, and a complete outfit even to toy snow shoes and gun. Next followed a woman with a pair of double knitted woolen mittens which she asked if she could buy back herself for her Charlie, as he needed them. (I saw Charlie's bright smile later when he got them.) Pretty soon in came another woman with a hooked mat, then a man with a whirligig set of model boats for a wind-vane, another with a pair of skin boots, and a poorer one with only a pair of boot bottoms, a lad with a rolling pin and board, and another with a footstool, splendidly carved with a Union Jack, "on which you could tread firmly," then some women with embroideries and lace work and fancy articles. Finally a real live Mrs. Wiggs handed in a beautiful new pillow slip. "There's sixty cents' worth of new stuff in it," she told me—a widow's mite, if ever there was one. There was one table with fine homespun and thick, warm mittens and "vamps" to go inside our skin boots, and another with beautiful mats with local scenes and lovely artificial flowers, already potted and made after the real French flower model—a trade which Mrs. Grenfell learned last winter in order to be able to teach some of the women here on the coast. The rummage sale was a marvel of precipitates. The book and Christmas card stall could not have been duplicated in New England or "Old England," while the model well, with the bucket and five-cent "dip" was so drained of supplies that volunteers had to rush out into the night to "compel more things to come in" to prevent the well being frozen up. Pathos was mixed with hilarity. One man gave the engagement ring which the girl who jilted him had sent back. Two men who had rings of their own gave them to be auctioned. One sold his watch and donated the proceeds saying that he could find out the time with a cheaper one.

The pessimists had loudly proclaimed that there would be no one to buy all the things, and even the most optimistic of us wondered where all the money was to come from to make all these purchases. Probably that will always be a secret. No one really knows. One friend who brought two large dry codfish and a smoked salmon admitted that he had spent a dollar and a half in cash and he had six children. Some who had done well with their

summer's fishery came for thirty miles to spend some of their money at the fair for the sake of the Belgians. Although the temperature outside stood at zero the ice cream stall had to shut down from sheer exhaustion before the fair was half over.

But marvel of marvels—when the uproar was over and the last of us gathered to safeguard the leftovers and decide what was to be done with them, everything was sold out. The last of the cakes had been auctioned at a dollar and a half, and the buyer, a really poor man, allowed it to be sold over again, "because he was that glad to get another dollar for the fund."

No, sir, not a thing remained. You could not have equipped a church mouse starting out in life, unless it had been with the lost fragments. But four hundred and seventy solid dollars remained for the "poor and distressed" brothers elsewhere. Could there be any better preparation for Christmas? These pleasures endure forever, and are a foretaste of the only heaven that is worth while and are what every one of our folk all along this bleak shore want to wish their generous friends everywhere.

Since this was written another \$120 has been given. Can we possibly rise in this barren corner of the earth to the honor of five figures? It is honestly the Christmas decorations we are looking for. Miserly enough we feel for once. Those of us who came here twenty years ago can well remember the day that we could have indulged no such aspirations. Is it not a great message to all our generous helpers that not a few have said to me, "We could never have done it but for the Mission?"

WILFRED T. GRENFELL.

[The secret of where most of the money with which to purchase the various "goods" came from has, in a very unexpected way, been revealed to the editor. In the little outposts near St. Anthony, after the ice finally broke up, there had been a late catch of fish, a very unusual thing, so these people were a little better off than their friends on the Labrador. Lady Davidson, the wife of the Governor of Newfoundland, gave her patronage, Mr. Joseph Moore of St. John's sent \$50, and other well-to-do people and nearby villages contributed sums of money to be used in purchasing the articles. Lock's Cove sent \$17 and a buyer. The contribution of \$120 was subscribed by the Orange Lodge.—Ed.]

Mr. Sprague Writes About Sterilizers.

To the Editor of THE MODERN HOSPITAL:

My attention has been called to your article on "Modern Sterilization" in the January publication of THE MODERN HOSPITAL. While in Chicago in 1911, I called at the Michael Reese and had the pleasure of a brief interview with you, so in writing I feel that I am addressing one to whom I am not an entire stranger, although in your article you speak of "Frank Sprague" as author of the sterilizing methods now so generally practiced throughout the world, and certainly give credit to "Frank" as having furnished apparatus for the practice of the methods which stand to this day as models of mechanical excellence unequaled by others who have entered the field within the 30-year period since "Sprague Dressing Sterilizers" came to the service of the surgeon and made modern aseptic surgery possible. There can be no question but that your complimentary article was intended for me, and it is much appreciated. I feel a debt of gratitude to you for it, still can but regret the use of the name "Frank Sprague" instead of A. V. M. Sprague—the name known pretty generally with the profession throughout the world in connection with sterilization. I know of no other Sprague but myself connected with the work, so am assured that this is a case where given names became misplaced. Will be much pleased if you will correct in THE MODERN HOSPITAL in such manner as may suggest itself to you.

You may, perhaps, also remember me as the author of "Modern Hot Air Therapeutics." Since I introduced the

gas-heated apparatus, electricity has come along and broadened out this field of benefit to mankind.

I quite agree with you that now, after thirty years' practice under the methods and with the apparatus for sterilization of which your article was the subject-matter, it is time to look for improvements, or, perhaps, change of method. I have had these thoughts in mind for the past year or two and am quite inclined to put these mental suggestions into form for practical demonstration and proof. I will write you a little later on in regard thereto, if I may have your permission.

Yours very truly, A. V. M. SPRAGUE.

Modern Sterilization—A Criticism.

To the Editor of THE MODERN HOSPITAL: January 5, 1915.

Your editorial in the January number of THE MODERN HOSPITAL on "Modern Sterilization" was pleasing to me in so far as it called attention to the fact that mere nickel-plating and extra "fixings" were great consumers of money in the purchase of sterilizers. I have always felt at the exhibitions of sterilizers on the occasions of the hospital association conventions, that the "fanciness" of the apparatus was given altogether too much importance and had very little relation to efficiency.

Anything you can say that will lead the hospitals to pay more attention to the manipulation and principles underlying the care of their sterilizers will be well worth while, if by that you can rob them of the idea which now seems to possess so many, that mere prettiness means efficiency, and that a metal polish massage is all that is necessary in keeping the "internal workings" as they should be.

I cannot agree with you, however, as your editorial proceeds to the discussion of the bacteriology or your attitude toward the dangers from the "spore-bearers." That there does exist a danger due to the pathogenic spore-bearers would seem to be sufficient basis for conducting sterilization so that this danger would always be obviated, no matter how remote or rare the occasion may be. I think I know your ideals of hospital management too well to allow myself to believe that you would advocate any lessening of the care used in sterilizing, and I am having a hard time reconciling your editorial with the standards I know to be yours. The line of demarcation between the non-spore-bearing and the spore-bearing organisms is well defined, it is true, but it would seem more sensible and rational to use all efforts possible to eliminate all danger by killing the most resistant spore-bearers. Especially is this so when it can be done with the present apparatus with only a little care and absolutely no change in the routine time and pressure.

As to the death point of the spore-bearers, your statement of the conditions required by the catgut manufacturers is rather misleading when applied to the conditions of fifteen pounds pressure for one-half hour, as practiced in the routine sterilization in pressure sterilizers. The problems are entirely different. In the preparation of catgut, the material must be free from moisture (water), or else the catgut will undergo a cooking process and be destroyed for the purpose intended. In that process the heating takes place in a bath of some high boiling substance, such as cumol. This is, in other words, dry heat, and it is a well-known fact that without moisture present, the temperature required for sterilization is much higher than that required in the presence of moisture, as is the case in the autoclave. I have, therefore, to take issue with you when you say, "If that is true, then we are not destroying spores in our fifteen pounds, 250 degrees, that we apply in our dressing sterilizers." The most re-

sistive spore known will be destroyed under the conditions used in pressure sterilizers.

I believe that much remains to be done to bring sterilization beyond the danger line and to overcome the hypnotism of nickel and porcelain. The guarantee of the manufacturer is taken to mean "in perpetuity" irrespective of the kind of attention or non-attention that is given to the poor inanimate instrument, and in my very brief experience with the subject of sterilization in hospitals, I should say that the routine of "going through the motions" had assumed its phase of being the "greatest indoor sport."

To conclude, it seems to me that a much simpler type of apparatus can and will be designed to accomplish sterilization of dressings, but this instrument must be so constructed that it will provide for the destruction of the spore-bearers as well as the others.

A. W. DIACK.

More About Sterilizers.

New York, January 6, 1915.

To the Editor of THE MODERN HOSPITAL:

Your editorial in the January number of THE MODERN HOSPITAL is bound to awaken a lively interest among manufacturers of sterilizers, and its breezy, fearless, and original tone has at least the merit of originality; as such it is certain to be welcomed by both manufacturers and hospital authorities alike.

As manufacturers of sterilizers, we feel that you have presented our side of the case without the necessity of further elaboration, but after having perused your article several times, and each time with additional pleasure, the writer cannot escape the conclusion that you have presented another "The Lady or the Tiger" enigma. The fact that sterilizers of more simple construction and of lower cost are desirable is admitted, but you will at the same time admit that it is equally true that the demands of the users of sterilizers are becoming more and more exacting, and no sterilizer can possibly meet with any considerable success as a selling proposition which fails to fulfil the very elaborate requirements of modern surgery. We feel, too, that modern sterilizers fulfil the demands made upon them to a considerable degree of perfection, and no one has yet been able to devise the ideal, simple, and inexpensive apparatus such as you picture. For ourselves, we stand prepared to reimburse the inventor of such an apparatus with a princely royalty. Let him come forth.

THE HOSPITAL SUPPLY COMPANY.

BY LEON L. WATERS.

[THE MODERN HOSPITAL is an open forum for the discussion of hospital problems. That the last word has not been said on the subject of sterilizers is indicated by the above two letters; that the editor who wrote the editorial under criticism was correct in his proposed solution of it is not at all so certain. The writers of the two letters are both men thoroughly posted on the topics they undertake to discuss, and their ideas are entitled to great weight. We shall be glad if there are others who have something to say on this important subject.—Ed.]

PATIENTS ORGANIZE TO HELP OTHERS.

Minnesota Association of Patients and Ex-Patients Proposes to Aid Sufferers From Tuberculosis.

Minnesota is opening up a new field for social service work. This time it is the sick, and the poor, not the healthy and affluent, who are to band together to help the needy.

The "Association of Patients and Ex-Patients of the Minnesota State Sanatorium for Consumptives" is a new society, the purpose of which will be to follow up all cases discharged from the sanatorium, find suitable work for

people who are recovering their health, and help get legislation to advance the interests of convalescents.

Only persons who have been patients at the State Sanatorium at Walker for three months or more are eligible to membership. The first work of the association will be to encourage such legislation as will make it possible for members to have the preference in the selection of laborers to reforest state lands. A legislative committee of five members living in or near St. Paul will start work immediately on this project.

Many patients who are discharged become employers of labor, and others can influence the choice of employees. They will all cooperate to get suitable work for their fellow members. Patients in smaller communities where there are no dispensaries will be assisted to medical attention and nursing. Local health societies will be notified of the discharge of patients.

Dr. George William Beach, superintendent of the State Sanatorium, will be chairman of the association. "For some time our patients have recognized the need of a society which would be of benefit to them after discharge," says Dr. Beach. "Aside from the bonds of sympathy resulting from facing similar dangers before admission, there are added those of having taken the same treatment for months, and the fact that they know from communication with discharged patients that it is not easy to continue on the road to health, nor easy to get the right kind of work. The patients can best understand and sympathize with each other. The new association will be a clearing house to look after discharged patients."

There will be no salaries and no dues in the association. Regular meetings will be held at the sanatorium, and elsewhere if deemed expedient. Quarterly letters will be sent by the chairman to every member asking for information as to his health, occupation, wages, and if he desires other work.

The official paper of the association will be "The Pine Knot," which is already being published at the sanatorium.

Four counties in Minnesota, Grant, Douglas, Lac Qui Parle and Blue Earth, voted on county tuberculosis sanatoria at the last general election, and in all four counties the sanatorium won. There are now 35 counties which have taken action for county tuberculosis sanatoria in Minnesota. The legislature will be asked to make appropriations for state aid to these sanatoria, in accordance with the county sanatorium law, similar to those already granted, and equaling half the cost of construction, and half the maintenance of patients unable to pay.

MARY A. DILLON.

On his return to London from an inspection of the French military hospitals, Sir Frederick Treves, sergeant-surgeon to the king of England, said that the American Ambulance Hospital was giving the best service rendered in Paris in the care of the wounded. He attributed the success of the institution largely to its large fleet of motor cars, facilities for quick transportation being the greatest need. The *Figaro* praises the American Hospital highly, saying that it possesses "a staff above par." President Poincaré visited the hospital recently. He commended the excellence of the surgical methods employed, and was particularly impressed by the work of the dental department.

Miss Emma M. Nichols, superintendent of nurses at the Boston City Hospital, is one of the busiest hospital workers of the country. In addition to supervising the nursing of the large institution with which she is connected, she is treasurer of the Boston City Hospital Nurses' Alumnae Association, president of the Massachusetts State League of Nursing Education, a member of the national committee of the American Red Cross Nursing Service, treasurer of the Suffolk County Central Directory for Nurses, and councillor of the Massachusetts State Nurses' Association.



Vincens Mueller, Technical Editor.
Geo. W. Wallerich, Associate Editor.

Retractor to Facilitate Perineal Repair.

BY DR. L. M. STEARNS, KEARNEY, NEB.

The gynecologist and the obstetrician will appreciate this new retractor, which will be a great help to them in the operation of perineorrhaphy, where two assistants were formerly needed, both armed with the so-called bullet tenacula forceps, which not infrequently tore the flesh and thus occasioned additional delay. The operation can now be done with the aid of this retractor and without any other assistance except that of a nurse. Consequently, this instrument will appeal especially to those operators who are sometimes forced to do this work in the home of the patient in the rural districts. It is operated as follows:



Stearns' perineal retractor.

The teeth of the blades are placed astride the corunculi myrtiliformi at the margins of the tear, and the blades are separated to the desired degree. The posterior vaginal wall is then placed on a stretch and the incision of the mucocutaneous junction can be made with a pair of sharp-pointed curved scissors. The vaginal wall is now raised from the rectum and V pieces removed from both sides of the median line, after which the muscles are grasped and the stitches placed; the retractor is then removed and the stitches tied.

If it is desired to use the continuous stitch, the retractor can be adjusted from time to time, as the stitch is drawn taut and removed when the deep suture is in place.

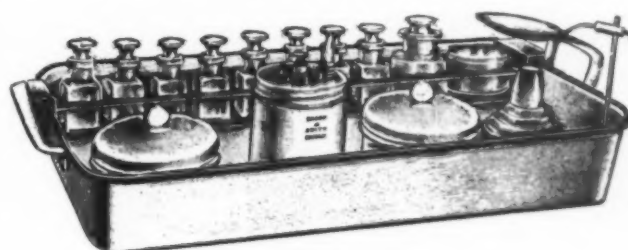
Illinois Training School Hypodermic Tray.

This outfit consists of a steel porcelain enameled tray 16 inches long by 10½ inches wide by 2½ inches deep, with substantial handles at each end. A German silver nickel-plated rack, running the full length of the tray and occupying one-third of it, is constructed to hold eight one-half-ounce square-form glass-stoppered bottles, which act as receptacles for the hypodermic solutions or tablets, whichever the institution desires to use; a two-ounce bottle to act as a receptacle for sterile applicators; and a small glass needle box 1½ inches in diameter by 1¼

inches in depth, to act as a receptacle for an extra supply of hypodermic needles. The rack is easily removed and can be readily cleaned.

The tray is also supplied with a hypodermic needle sterilizer, comprised of a four-ounce brass alcohol lamp, with a vertical stem riveted and brazed to it, which acts as a support to a German silver tablespoon, all of which is nickel-plated. The cap or the flame extinguisher is chained to the lamp so that it cannot be lost.

Two white enamel sponge jars, 2½ inches in depth by 3½ inches in diameter, with covers, are supplied, and a six-ounce ointment jar with a German silver nickel-plated screw top, which is perforated in such a manner as to admit one hypodermic syringe, one thumb forceps, and six hypodermic needles to be suspended through the cover into the jar and to stand in a sterilizing solution, ready at all times for immediate use.



Hypodermic tray.

What is known to the trade as R. and B. hypodermic needles are recommended. These have a threaded shoulder and screw into the cap of this ointment jar left-handed, thereby enabling the nurse to screw the syringe into the needle and at the same time unscrew the needle from the cap of the jar, which obviates the necessity of touching the needle at all.

Realizing that there are many ideas relative to the various items to be used upon a hypodermic tray, sufficient space has been left in this tray for any additions that may be desired by the purchaser. This tray is made and sold by Sharp and Smith, Chicago.

Improved Binocular Magnifier.

The inventor of this new binocular loupe claims it is the highest power binocular magnifier made, giving an enlargement of five diameters, whereas the strongest binocular loupe now on the market gives only two and one-half diameters. The working distance is twelve inches,



Pettet binocular loupe.

which is the natural reading distance. This gives plenty of room for the operator's hands between the magnifier and his work, as well as good illumination.

The lenses are so constructed that the intrinsic muscles of the eyes are at rest when the instrument is being used, at the same time there is a natural convergence for the working distance, giving a true sense of distance with full stereoscopic effect, which is so essential, especially in the removal of foreign bodies from the eye.

The magnifier is made of aluminum, hence is very light in weight. It is supplied with an adjustable, soft leather headband or, when preferred by the operator, a metal headband. It is so arranged that the operator is able to see under and around the instrument for convenience in seeing and picking up the necessary instruments without shifting the loupe.

The oculist who has often complained that the power of the well known Berger loupe is too low and the working distance too close (as one has to place the lenses close to the patient's eye in order to get the proper magnification) will no doubt find this new apparatus a welcome addition to every armamentarium.

An Automatic Water-Cooling System for Roentgen Therapy and Fluoroscopy.

As every hospital superintendent and surgeon is interested in keeping down the operating cost of his x-ray department, anything new which tends to reduce this cost is naturally of more than passing interest. This is especially true at this time, since we are to a great extent dependent upon Europe for supplying x-ray tube material, particularly the glass. While most x-ray tubes now used in this country are built here, the glass for them is imported.

Just why we cannot as yet produce chemical glassware which compares favorably with the European product, we do not know, but undoubtedly the x-ray tubes made with the imported glass are far superior to any we have been able to produce here. In consequence of this, it is important that all possible steps be taken to conserve our present supply of x-ray tubes.



The water-cooled type, which is now being more generally used than formerly, offers many advantages, in that the anode can be kept comparatively cool, which means that a more improved state of vacuum can be maintained within the tube, and consequently higher penetration may be had. The tubes which fluctuate quickly under the stress of a heavy current or continued running can-

not give good results, as they have a tendency to change rapidly in penetration, the result being that the operator cannot reproduce, within a reasonable range, the same results in each case, current conditions being the same.

By the use of the water-cooled tube the vacuum remains practically the same, though the water must be circulated so as to distribute the heat. The apparatus illustrated has recently made its appearance on the market and seems to solve the problem of water circulation of x-ray tubes without the possibility of grounding the current.

The device has a glass reservoir with displacement for five gallons of water. The water is forced into the glass reservoir of the x-ray tube, out and back into the large reservoir by means of a small centrifugal pump, connected by means of a leather belt to a small variable speed motor. The belt also serves to insulate the supply current from the water.

The circulation of the water is automatic and requires no attention after the apparatus is once started.

HINTS FOR HOSPITAL SUPERINTENDENTS.

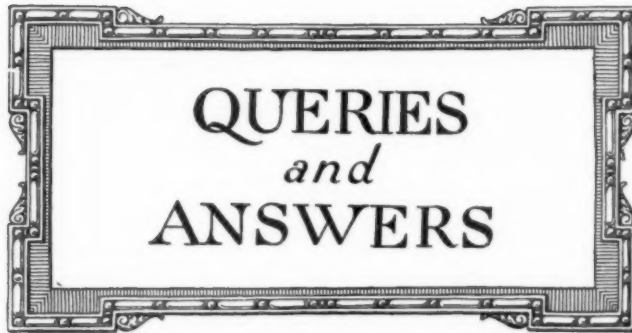
Whatever you do, don't allow any member of your family, or any relative, to be employed in your hospital in any capacity. Even the most helpful and efficient employee, if a relative of the superintendent, is sure to stir up trouble. Envy and jealousy are pathogenic organisms that thrive in every hospital.

The threatened shortage of pure potash green soaps has been relieved. We are reliably informed that one of the makers of potash soaps has secured several car loads of potash, enough to make all the green soap required for hospital consumption for quite a while to come. We understand that the price has been reduced.

No matter what sort of water you are using in your hospital for drinking purposes, you had better have it analyzed every once in a while. Many epidemics of typhoid have swept through hospitals because the plumbing and the sewage got on too intimate terms; especially where pipes run together through concrete.

When you buy battleship linoleum, be sure that it has been sufficiently dried while hanging in the factory. Because of the tremendous boom in battleship for hospital floors, manufacturers seem to have difficulty in holding it long enough to get it thoroughly dried out; the result is that even when it has been well laid, chair feet, casters, and even heels make dents that remain.

Hospital superintendents cannot demand the respect of their boards and staffs; their work and their knowledge of their business must command it. Once let a board become impressed with the idea that its superintendent knows more about hospital practice than any of the members, and that superintendent's presence will be sought at the board meetings. And the same thing is true of the medical staff. Don't go around whining because your board shuts you out of its meetings, and transacts the business of the institution without even a thought of your existence. Show them, by your grasp of things, and by your businesslike methods and plans, that they cannot do justice to their institution without your advice and counsel. When matters come up involving a precedent, tell them what other hospitals are doing about that particular thing; if you don't know, that is precisely what THE MODERN HOSPITAL is trying to help you learn; better read it pretty closely.



To Restore Green Oil Soap.

I have noticed that our green soap has become chilled, or turns granular, with a light yellow color. We keep it in a cold storage room. Does freezing weather affect the soap? What is the best way to treat it?

V. E. H., Minneapolis.

If your potash (green) soap should become chilled and turn light yellow and granular or crumbly, put the soap in a very warm room until it regains its golden yellow transparent color. Freezing temperature does not injure the quality of green oil soap, but it suds better if dissolved after it is warmed up. If you have not a warm enough room to prevent chilling, take the amount you want and dissolve into soap stock or suds, press it into chunks, and place it in enough very hot water to cover the soap; and let it stand for a half-hour, and do not stir or agitate it. The hot water will warm the soap to the proper temperature to bring it back to its natural state. After a half hour's time, you may stir and dissolve the soap, or take it out of the water to be used as desired. If the soap has no filler or adulterant it will work as well as ever. It is important not to stir the chilled soap when first put into hot water.

Sepsis in the Hospital.

To the Editor of THE MODERN HOSPITAL:

Our doctors are constantly complaining that even simple wounds in our hospital become infected, while this same class of injuries and minor operations treated at home get well without any trouble; it is true that a good many of our wounds get small infections, not very serious, and only delay the recovery of the patients a few days. Is there any excuse for hospital wounds becoming infected, and if not, what can we do about it? Where is the trouble? We try to observe all the rules of aseptic surgery, and keep as clean as we can.

ONE IN TROUBLE.

Naturally there is more likelihood of infections in a hospital than anywhere else; that is why we are compelled to take such great precautions to prevent them. A large majority of sick people have infections of one sort or another; the contact of these sick and hurt with one another, and the common use of dressing rooms, utensils, and instruments, to say nothing of interns' and nurses'—yes, and surgeons'—infected hands, all multiply the dangers.

But there are pretty definite harbors of infections in hospitals, and some well understood and very common methods of contact between the organisms and the receptive host. You alone cannot cure the condition; you must get your pathologist, or the best man in pathology on your staff, as well as the surgeons who complain, and urge them to help you find the source or sources of the infections of which they complain, then go energetically to work to remove the cause.

A hospital is never better than its medical staff, and it is the business of the staff to guide you on all matters of

medical science, and to help you keep things up to a modern scientific measure. A dirty, infected, ill-smelling hospital generally has a medical staff to match.

For the Protection of Superintendents.

To the Editor of THE MODERN HOSPITAL:

What protection is there for the hospital superintendent against an unsatisfactory engagement?

Desiring professional advancement, and receiving a promising offer, I left a hospital of seventy-five beds and an excellent board of trustees, who offered to advance my salary to that offered by the larger institution, and was woefully disappointed.

The hospital was not as large as represented, and the board was completely dominated by the will of one person. My hands were so tied that success in my work was out of the question. After a six months' struggle I gave it up, and, declining repeated offers of my old position, went to my home for rest, a wiser but a weary woman.

I had served nearly eight years in one hospital, and three in another, and "they" had every opportunity to investigate my professional record, and were practically sure what they were getting.

Should not there be some means of information equally enlightening for the superintendent?

Standardization is going forward, but a hospital may come up to a required standard of equipment and yet be the victim of a board of trustees who make working conditions impossible. Such an institution cannot *progress*, but may *live*—until (as in the case above cited) its cause has been espoused by many unfortunate superintendents. "Experience is a dear school."

Could THE MODERN HOSPITAL assume the role of reference bureau?

A SUPERINTENDENT.

Unfortunately, the writer tells a story that is all too common. Of course boards of trustees should know "what they are getting" in a superintendent, and equally, applicants should know all there is to be learned about the hospital to the superintendency of which they aspire; and this is hard to accomplish. Often applicants are asked to visit the town and appear before the board—all between trains. They do not know anyone to whom they may go for confidential information, and the most astute will learn only what the board wishes to have known. It is almost impossible to cure such a situation. The only way for applicants to do, it seems to us, would be to get in touch with some of the members of the medical staff and have a heart-to-heart talk with them; usually these men are only anxious for good service, and they know what good service is; they know better than anyone else whether conditions in their institution will lend themselves to the service they require, and as a rule they will be honest and frank with anyone who has a right to know, and who is thinking about so important a step as accepting a position as head of a hospital. Better not stop after seeing one staff member; see several, and have some private talks with two or three members of the board, especially those who have not had much to say in the meeting. A hint here or there will often show whether there is trouble, and if so, its nature. Then, when the trouble is known, it will be far better to go right straight back to the president of the board or the dominant person, state the case, and have it out.

The Maternity Hospital Society of Brownsville and East New York is the name of a new organization which proposes to establish a thirty-bed maternity hospital at Brownsville, Long Island. The institution is to be non-sectarian in character, and is to be maintained by popular subscription, donations and bequests. It is estimated that the cost of building and equipping the hospital will be \$55,000. A medical board will render services gratuitously, under the direction of Dr. John A. Polak and Dr. Abraham Mandelbaum. In addition to regular hospital service, the association will furnish nurses and physicians in homes where families are too poor to pay.



Any questions regarding equipment or other matters connected with the kitchen and dependent departments of food storage and service will be answered in this department. Address communications to THE MODERN HOSPITAL, Kitchen Department, Metropolitan Building, St. Louis.

Incinerators.

The great trouble with incinerators of the type which utilizes the heat of gas directly on the garbage is that the combination of heat and acids from the garbage eats up the metal linings of the incinerators in a very short time. Where natural gas is used, the life of these incinerators is exceedingly short, and when the carelessness of the help in cleaning them out is added, the linings soon give out and must be constantly renewed. This makes the operation of this type of incinerator very costly and unsatisfactory. Unfortunately, it is too much to hope that they can be improved upon to any great extent, because the combination of gas heat, acids, and unprotected metal predicated the destruction of the metal, and always will do so.

The large incinerators, which are of fire-brick, with grate bars of heavy castings, and with either coal or natural gas fires, will give better satisfaction, because the linings will withstand the heat; and while the grate bars, like boiler grate bars, will in time give out, the fact that they can be made of a substantial thickness of metal insures a reasonably long life, and they cost little to replace when worn out. They can, however, be used only in comparatively large units.

In both of these types of incinerator there is no recovery of the heat units in the garbage; that of necessity goes to waste, as also do the heat units in the coal or gas used to incinerate the garbage; consequently the burning of the garbage costs the fuel bill plus the cost and upkeep of the apparatus and the labor of the attendant.

Every hospital requires hot water, and plenty of it; and every hospital pays a fuel bill to produce the hot water it uses; therefore if the heat units in the garbage, plus the heat units in the fuel used to incinerate it, can, with the same labor cost, be utilized to produce the hot water required, the saving is obvious.

Garbage consists of various articles rich in fuel values: good animal fats, bones, and some combustible and heat-giving matter. One ton of garbage, when dry, contains as much heat as two hundred pounds of good coal; often it contains more.

In the borough of Shoreditch in London all the garbage which formerly was hauled to barges, towed out to sea and dumped at great expense has for about fifteen years back gone into a great destructor plant, where it is burned with practically no addition of coal. From it is produced electricity, which is sold at a very low figure to small industries in the borough; besides which a public laundry and bath house are supplied with hot water and light; and the net result is an income to the borough from material to get rid of which it previously spent thousands of dollars.

What can be done with the garbage of a large city like Shoreditch can be and is being done on a small scale in hospitals, hotels, and apartment houses.

A test was conducted in five apartment buildings of from six to twenty-eight apartments, for three days in each. Water was furnished at a constant temperature of 160° F. in ample quantities to supply all demands; all the garbage from the apartments was completely consumed without odor, and the average cost for coal for each apartment for twenty-four hours was 2½ cents. Assuming the average apartment to consist of four rooms, this means that a building containing one hundred and twelve rooms would cost 78½ cents per day for coal enough to furnish all the hot water used, besides incinerating all the garbage.

In properly constructed apparatus, of which there are several types in the market, there is absolutely no odor from the burning of the garbage.

During the past few years these hot-water producing garbage burners have been tested in various parts of the country under varying conditions of wetness of garbage and with varying quantities of it, and the consensus of opinion tends to show that in the smaller class of hospitals, especially, the matter is one well worthy the careful consideration of superintendents who wish to combine economy with complete garbage destruction.

Specifications of Kitchen Equipment.

Many hospitals have been the victims of improperly drawn kitchen equipment specifications and many more will be victimized in the same manner unless more attention is paid, by those who contemplate the purchase of equipment, to the proper drawing up of specifications upon which they ask for bids, and to the intelligent study of specifications accompanying the bids submitted to them for consideration.

Every kitchen equipment manufacturer has some little peculiarity in his construction which he emphasizes in his specifications and to duplicate which his competitors would have to go to extra expense; consequently specifications in a great many instances represent one manufacturer's specifications, and when the rival bidders put in their bids each one submits his specifications with his bid.

To the uninitiated these specifications read very much alike, and it really takes an expert to differentiate between them, although the difference in price is in most cases traceable to the difference in material and workmanship.

With the hope of furnishing a fairly reliable guide in judging specifications and furnishing the information necessary to demand explanation of obscure or uncertain descriptions of material, it is proposed to give a standard set of specifications for the main fixtures in use in the average hospital kitchen, with the why and wherefore of such specifications.

The basis worked on will be that of the highest quality and most durable construction, and with that basis to work from the purchaser of equipment can readily see to what extent the specifications accompanying the low-price bids measure up to the standard required to insure durability under the heavy strain of an institution kitchen.

Specifications should be drawn so as to confine themselves to the main points of construction which insure durability without covering small points which favor any one manufacturer's type of apparatus, because any three manufacturers may produce equally good equipment, all equally filling such a specification, yet different in some points which do not affect the durability or practical working of the apparatus.

These essentials of construction being guaranteed, the question of the lowest price can then be safely taken up; but the minute the manufacturer's specifications do not square with the basic specifications, the price cannot be considered on an equal footing, because the bid is not on the same article, and the manufacturer can be requested to show wherein his goods differ in quality.

DIET KITCHEN UTENSILS.

The following is the list of small utensils specified for the diet kitchen of the new Cincinnati General Hospital:

- | | |
|--|---|
| 1 fine Chinese strainer, No. 60. | 12 aluminum cake pans, No. 166. |
| 1 coarse Chinese strainer, No. 60. | 12 aluminum cake pans, No. 286. |
| 12 asbestos mats. | 24 aluminum measuring cups, No. 180. |
| 12 small wood spoons. | 1 aluminum melon mold, No. 110. |
| 6 18-inch basting spoons. | 24 aluminum pie pans, 10-inch, No. 284. |
| 12 15-inch paddles. | 1 aluminum griddle, No. 389. |
| 1 15-inch long-handled wood spoon. | 12 aluminum pudding pans, No. 80. |
| 6 French strainers. | 12 aluminum pudding pans, No. 71. |
| 12 Sherwood strainers, No. 702. | 1 aluminum stock pot, No. 716. |
| 6 glass graduated measuring cups. | 1 aluminum stock pot, No. 814. |
| 24 glass jars for sugar, flour, etc. | 24 aluminum bread pans, No. 101. |
| 1 Rollman meat cutter, No. 15. | 6 aluminum 6-hole muffin pans, No. 102. |
| 6 medicine glasses. | 1 aluminum baking dish, No. 292. |
| 1 glass syphon. | 1 aluminum baking dish, No. 167. |
| 1 glass churn, 2-quart, No. 3797. | 1 aluminum colander, No. 208. |
| 12 Puritan biscuit cutters, 2-inch. | 10 aluminum double boilers, No. 940. |
| 12 sponge cake pans, No. 1. | 2 aluminum double boilers, No. 942. |
| 1 long-handle dust pan, No. 4, Fries. | 2 aluminum double boilers, No. 941. |
| 12 Enterprise whips. | 2 aluminum double boilers, No. 917. |
| 1 Creamer dredge, No. 2. | 2 aluminum double boilers, No. 919. |
| 2 round graters, 5-inch, No. 1532. | 5 aluminum milk pans, No. 393. |
| 1 Peerless nutmeg grater. | 2 aluminum sauce pans, No. 605. |
| 12 Puritan muffin pans, 6 2-inch cups, No. 120. | 3 aluminum sauce pans, No. 507. |
| 1 Arnold pasteurizer (8 bottles). | 2 aluminum sauce pans, No. 506. |
| 1 pair butter pats. | 12 aluminum sauce pans, No. 50. |
| 1 17-inch maple bowl. | 3 aluminum sauce pans, No. 707. |
| 1 19-inch maple bowl. | 3 aluminum teakettles, No. 117. |
| 12 hand brushes. | 48 aluminum timbale molds. |
| 1 24x6 knife board. | 2 aluminum omelette pans, No. 457. |
| 1 knife box. | 2 aluminum dippers, No. 220. |
| 12 Rubber-set pastry brushes, 1½-inch. | 2 aluminum dippers, No. 222. |
| 12 small rolling pins. | 1 aluminum coffee biggin, No. 373. |
| 1 silver brush. | 1 aluminum coffee biggin, No. 374. |
| 1 chair step ladder. | 1 Universal 9-cup coffee percolator (colonial). |
| 10 1-quart Rockingham teapots. | 12 aluminum bake pans, No. 95. |
| 5 aluminum funnels, Nos. 302-3-4-5-6. | 12 aluminum bake pans, No. 99. |
| 3 aluminum scoops, Nos. 433-4-5. | 12 aluminum bake pans, No. 100. |
| 12 apple corers. | 2 aluminum bake pans, No. 247. |
| 1 cake turner, No. 14. | 1 aluminum shaker and strainer, No. 115. |
| 2 small Sure-Cut can openers. | 12 aluminum cake pans, No. 91. |
| 1 carving set. | 6 aluminum measures, Nos. 190-1-2-3-4-5. |
| 1 two-blade mincing knife. | 2 aluminum wash basins, No. 228. |
| 1 Christy cake knife. | 1 aluminum cruller pan, No. 770. |
| 1 cork screw. | 12 aluminum fry pans, No. 407. |
| 1 Universal chopper, No. 2. | 36 aluminum diet carriers, No. 802. |
| 1 Chandler ice breaker, No. 1. | 1 wafer iron. |
| 2 ice cream freezers, 1-quart. | 1 16x24 heavy iron griddle, polished. |
| 2 ice cream freezers, 2-gallon. | 3 sink strainers. |
| 2 ice cream freezers, 1-gallon. | 3 soap dishes. |
| 10 ice cream freezers, 1-pint. | 3 pudding molds, No. 1-2005. |
| 1 ice pick. | 1 Christy mayonnaise mixer. |
| 1 dozen paring knives. | 1 croquette mold. |
| 1 potato masher, maple, 4-inch. | 1 Savarin mold, No. 2009-7. |
| 6 Hein's pressers, small. | 1 Columbia meat press, No. 30. |
| 1 aluminum tea ball. | 2 oven shovels. |
| 12 Columbia flour sifters. | 1 timbale iron. |
| 1 Syllabub churn, 12-inch. | 1 set larding needles. |
| 6 vegetable presses, No. 2. | 2 bread boxes, No. 3, white. |
| 12 Guernsey brown and white bowls, 1-quart. | 1 culinary basket, 12-inch. |
| 12 Guernsey brown and white bowls, 2-quart. | 1 salt jar. |
| 6 Guernsey brown and white bowls, 3-quart. | 1 baking powder jar. |
| 6 Guernsey brown and white bowls, 4-quart. | 1 pair poultry shears. |
| 12 Weller custard cups, No. 7. | 12 8-inch spatulas. |
| 3 Guernsey casseroles and lids, 1-quart, No. 67. | 20 asbestos holders. |
| 3 Guernsey casseroles and lids, 1-pint, No. 66. | 10 double scale thermometers, 400° F. C. |
| 24 Guernsey ramekins, No. 3. | 2 garbage cans and lids, No. 8. |
| 12 Hall shirred egg dishes, No. 2. | 48 tin timbale molds. |
| 1 aluminum strainer, No. 912. | |
| 1 aluminum strainer, No. 914. | |
| 6 aluminum pans, No. 286. | |
| 2 aluminum jars for brushes, No. 362. | |
| 12 aluminum bake sheets, No. 799. | |

THE STEAM TABLE.

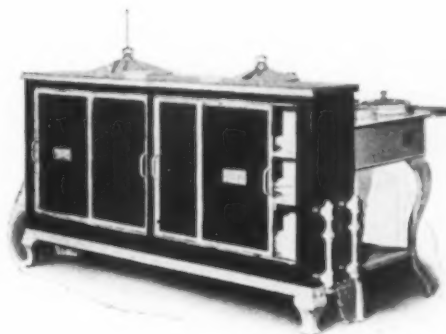
No matter of what material a steam table is constructed, the all-important thing to watch is that the water pan is thoroughly cleaned out every day, or at least twice a week. The cleaning out of the pan has more to

do with the length of life of the table than almost any other factor.

The top of a steam table should be of white porcelain enamel on iron. Usually the platter and vegetable jar sections are of cast iron, enameled with German porcelain enamel, which does not discolor and is exceedingly tough. These platters are made for roasts, with or without depressions for gravy, and there are narrower platters for fish, and panels with round holes to contain the porcelain vegetable jars; also narrow panels to contain gravy boats, or, preferably, small porcelain jars for the gravies.

The part of a steam table which wears out is the water pan, and this may be constructed of various materials.

The action of hot water and steam upon metals causes rapid deterioration unless the metals are kept clean. There are various metals from which steam table pans can be made. One of these is monel metal, which contains 74 percent of nickel, 5 percent iron, and 20 percent copper, and is non-corrodible and, therefore, practically indestructible. This, however, is very high priced, and very hard to work, consequently causing a high labor cost in construction, for which reasons it has not come into general use, although it is the ideal metal for the purpose.



Another metal, the favorite for steam tables, is copper; but a thin copper pan inside a steel pan is to be avoided, because any slight leak will cause a deposit of wet to cover the steel below and rapidly rust it out.

In specifying a copper pan for a steam table care must be taken to specify the weight of copper. "Heavy copper" means nothing; "forty-ounce copper" means that and nothing else, and no first-class steam table pan should be constructed of much lighter gauge copper. Too many specifications omit the gauge, consequently the bids are not on uniform material and the gate is open to too light gauge material. The water pan should be seven and one-half inches deep, because this depth will prevent the overflow of water when boiling. Shallower pans are to be avoided for this reason.

A very satisfactory form of pan is made from strictly charcoal iron; this is much more satisfactory and will wear better than a light gauge copper pan. This iron will stand steam and is stiff and rigid enough to make braces unnecessary. Fourteen gauge iron is sufficiently strong for the purpose, but steel should never be used, as it rapidly rusts out. A copper pan should be mounted on an angle-iron frame, with angle-iron braces every four feet under the pan to stiffen it; these braces, however, are unnecessary in the charcoal iron pan.

The lower portion of steam tables should not be used for plate warmers, because such warmers are always dirty, difficult to get at and keep clean; a better form of warmer is one placed in front of the steam table, the top being used for a service shelf.

The following specifications would be safe for steam tables:

Steam table: — long and — wide, exclusive of carving boards. (The standard is usually 24 in. wide.)

Water pan: — feet long, 7½ inches deep, fitted with 1-inch cleanout connection and steam coil (copper, brass, or iron), and constructed of 16 gauge monel metal, or 40-ounce copper, or 14 gauge charcoal iron, painted two coats metallic paint inside. Top of table fitted with — meat platters, — gravy panels, each containing two gravy boats (or three porcelain jars with copper covers), one soup panel, — vegetable panels, each containing two steam-tested porcelain vegetable jars, with copper covers. Panels to be of cast iron, fitted with water rims, and enameled with the best quality German porcelain enamel. All panels to be removable.

Table to be mounted on cast-iron legs and to have galvanized iron plate shelf below. Maple carving board 1½ inches thick and 8 inches wide to extend entire length of table on both sides.

In estimating the length of a steam table, the meat panels and soup panels may be taken at 18 inches each; the vegetable panels, each containing two vegetable jars, at 12 inches, and the gravy panels, each containing two gravy boats or three gravy jars, at 6 inches each.

Different firms vary slightly from these dimensions, but the average will be near enough. Thus, three meat, one soup, two gravy, and two vegetable panels would mean a table nine feet long. For carving purposes one or two joints can be placed in each meat panel.

Some specifications call for the copper pan to be tinned inside. This is entirely unnecessary, as the tin soon wears off, and, while it looks pretty when new, is of absolutely no practical value and increases the expense.

Don't mix your medical care of patients with your finances. Don't let your doctors have anything to do with their patients' bills. It is all right to ask a doctor about the financial condition of his private patients as a mere matter of information; but don't accept a doctor's guarantee of a bill, don't allow him to collect a bill, and don't let him fix charges or have any part in the financial operation. These mixed relationships are not only bad precedent as a matter of administrative principle, but they are sure to lead to regrettable incidents. Some day a patient whose bill has been guaranteed by a doctor will fail to pay. If you call on the doctor to settle, he is sure to resent the request, and you will make an enemy of him, or, at best, a very lukewarm friend. It is all right for a doctor to engage accommodations for a patient, because it is the convenient way, and he will usually know what he wants for the patient, and what the patient can afford; but always treat such negotiations as merely tentative, and take the matter up with the patient or his friends before settling it finally. Many doctors like to be a part of the financial arrangement with their patients, and a good many of them will actually collect the fees for you. But suppose they want you, in turn, to collect their fees; where does it leave a self-respecting administration? If you fix a definite policy in this matter, the medical profession will fall in with it gladly, and will eventually appreciate the freedom it gives them.

Dr. Thomas S. Potts, superintendent of the Baptist Memorial Hospital at Memphis, Tenn., for the last five years, severed his connection with the hospital January 1, to resume evangelistic work. Following Dr. Potts's resignation a new administrative plan for the hospital was adopted. The institution will now be under the control of an advisory board, with Mr. P. C. Wilkes as active manager.



TO BOOM THE SAN FRANCISCO MEETING.

Secretary Boyce Issues First Call for Big Attendance at First Pacific Coast Convention.

Secretary H. A. Boyce, of the American Hospital Association, has fired the first gun in the campaign to get out a large and representative attendance at the San Francisco meeting. His circular letter is as follows:

The next meeting of the American Hospital Association will be held at San Francisco, June 22, 23, 24, and 25, 1915.

Doubtless this will be the greatest hospital convention ever held.

Trustees should arrange to have a representative at this meeting. By all means see that your superintendent attends. It will pay your institution to provide for his expenses.

The Association has for its object the promotion of economy and efficiency in hospital management. Thousands of dollars of public money are being saved each year because of suggestions for improvement and economy learned at these meetings. Has your superintendent ever had the privilege of listening to the ablest hospital administrators discuss questions which are of vital interest to small as well as large institutions? Indeed, the majority of the discussions at these meetings refer to small hospital problems.

The transactions of the St. Paul convention are just about completed. This report contains about five hundred pages of matter pertaining to institutional care of the sick. In fact, every phase of hospital work is discussed. As soon as you read this notice send your application at once and receive a report of the St. Paul convention.

Grading of nurses, hospital architecture, cost accounting, hospital housekeeping, and hospital morbidity statistics are among the number of important subjects contained in this report.

The following extracts from the constitution and by-laws indicate who are eligible to membership:

"Active members shall be those who at the time of their election are trustees or executive heads of hospitals."

"Associate members shall be those who are executive officers of hospitals next in authority below the superintendent, contributors to or officers or members of any association the object of which is the foundation of hospitals or the promotion of the interest of organized (medical) charities, hospital physicians, surgeons, pathologists, and superintendents of nurses."

"All applications shall be in writing, and shall be endorsed by one or more members."

"The annual dues of active members shall be \$5.00; the dues of associate members shall be \$2.00." (Kindly send amount of dues with application.)

The initiation fee is \$5.00. This amount covers the first year's dues.

Do not forget that the next meeting is at San Francisco. Special rates will obtain on all railroads. This will give an opportunity for every hospital superintendent to attend this important convention.

The American Medical Association meets at the same time, and the great Panama Pacific Exposition will be in full swing then.

It is hoped that everyone eligible to membership in the association will forward an application to Dr. H. A. Boyce, secretary, Kingston, Canada, at once. Come along, fellow-workers, let us build up our hospitals and at the same time boost the greatest hospital organization in the world!